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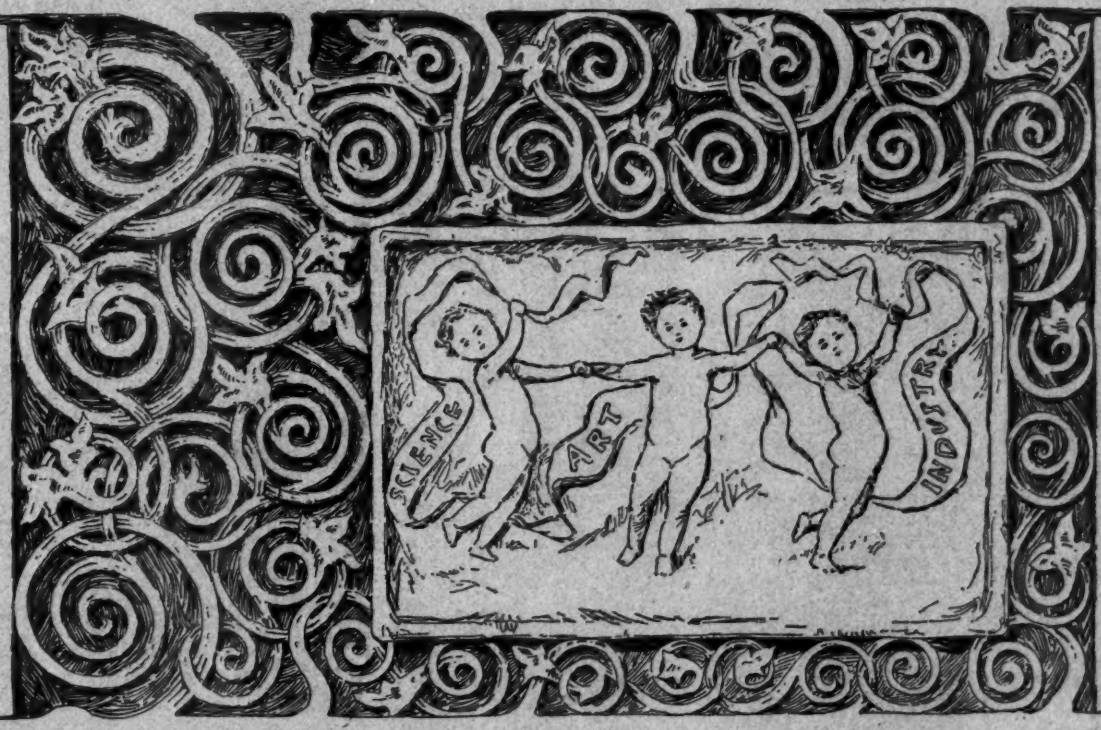

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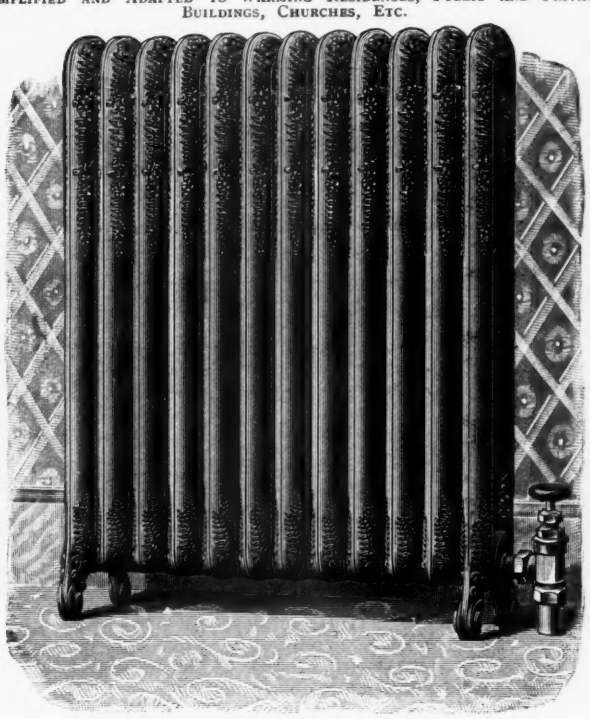

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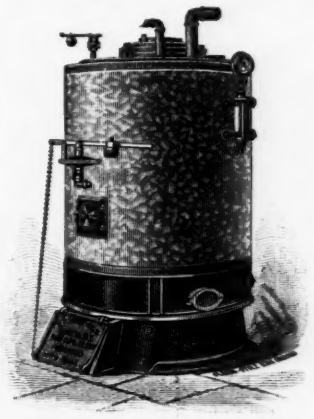

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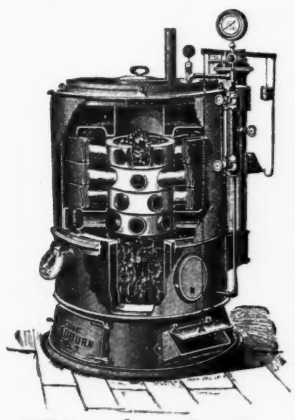

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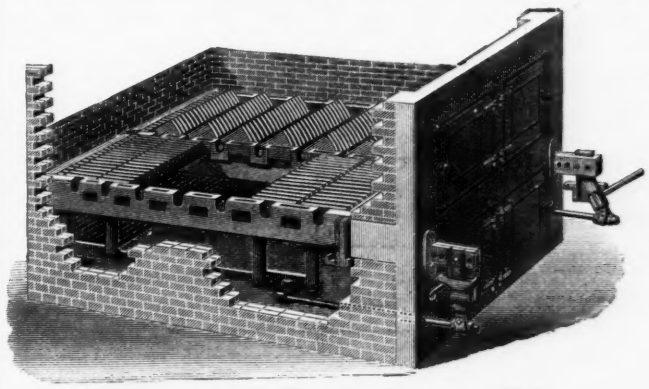

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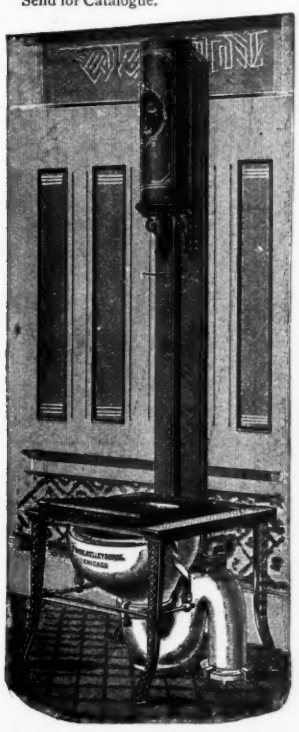

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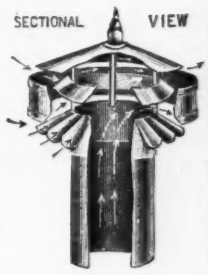

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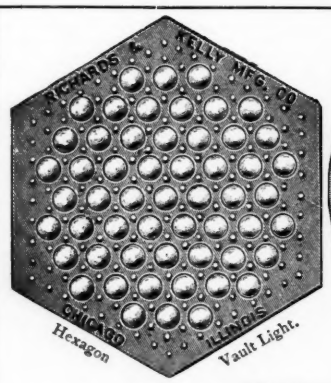

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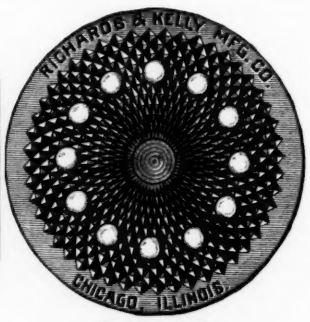

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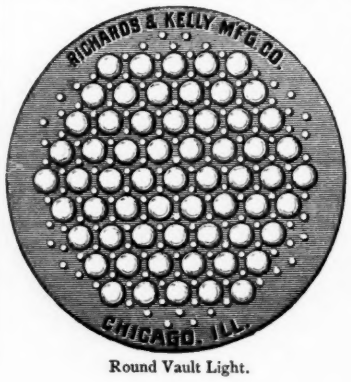
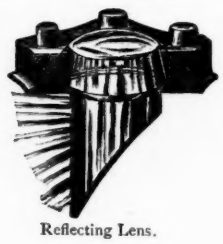


Round Vault Light.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The Inland Architect and News Record.

INTERMEDIATE NEWS NUMBER.

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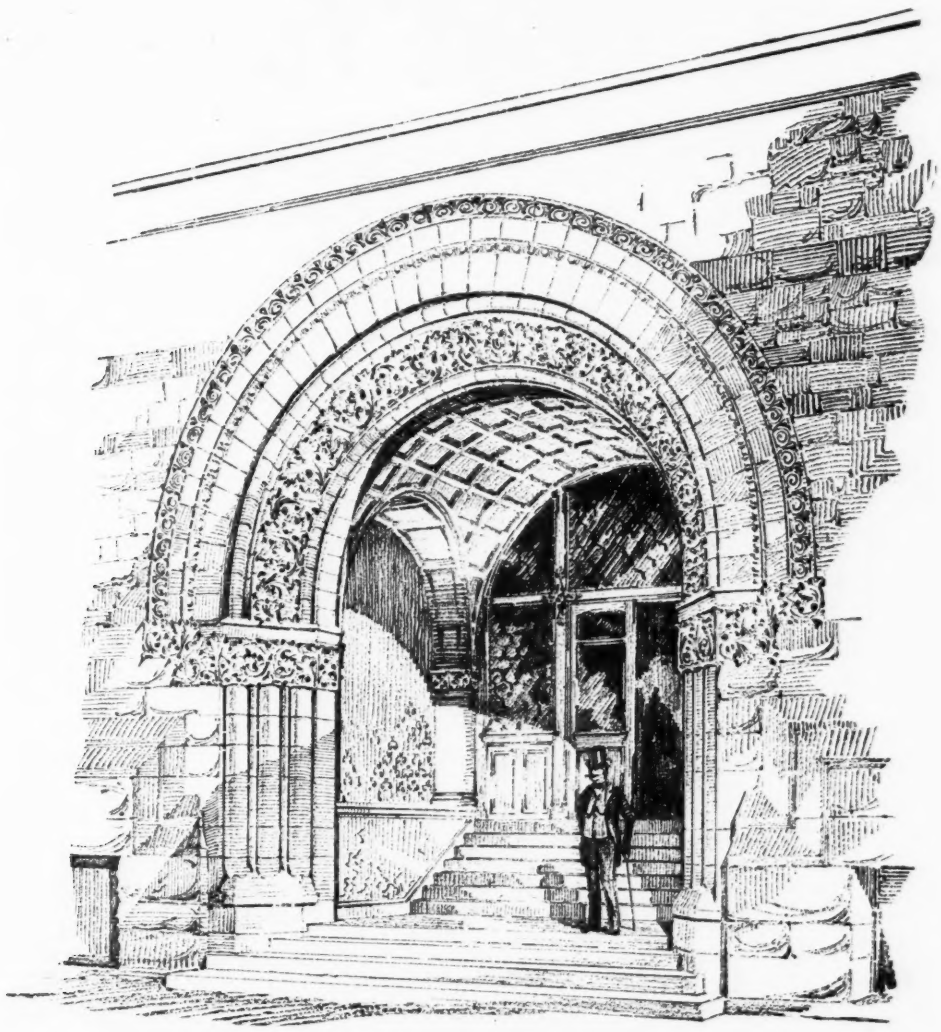


ENTRANCE TO ART INSTITUTE, CHICAGO.

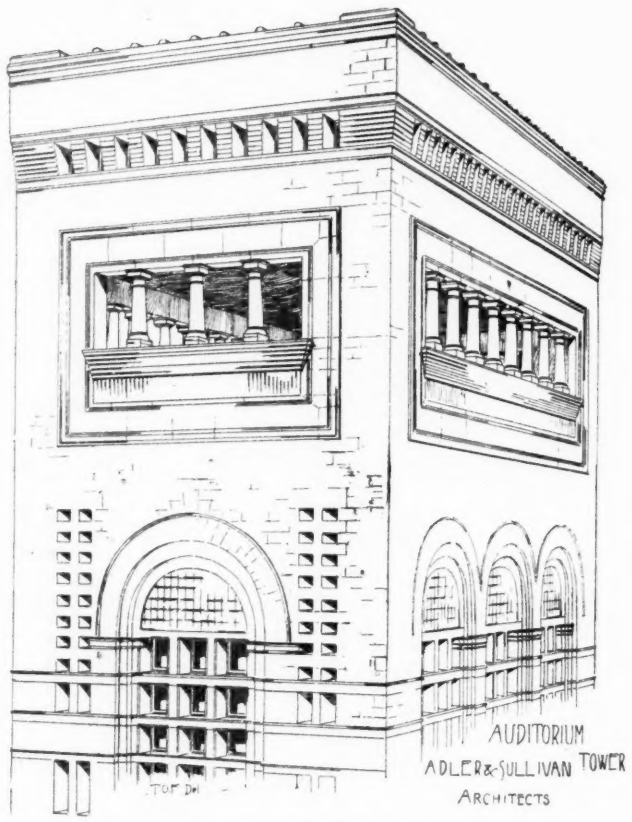
BURNHAM & ROOT, ARCHITECTS.

THE Twenty-first Annual Convention of the American Institute of Architects, which met at Chicago, October 19, 20 and 21, was probably the most successful of the association meetings of many years. The attendance was large, and the brightest minds in the profession were represented. The newly completed Art Institute, where the convention was held, was peculiarly adapted to the purpose. The Literary Club's apartments, in which the meeting convened, was softly carpeted and harmoniously decorated, while its large fireplaces and cheerful wood fires gave a bright and cosy air of homeliness to the deliberations. The attendance numbered sixty members, representing twenty-three cities. Of these, the farthest north was St. Paul, the farthest south Nashville, Tennessee, and the farthest west Cedar Rapids, Iowa, while the larger part of the representation was from New York and other eastern cities. In the discussions no final action was taken. The principal questions which came before the meeting, that relating to a uniform system of contracts, and that looking toward the union of the two architectural associations in the United States, together with others, being placed in the hands of committees. D. H. Burnham, of Chicago, read an able paper upon the prospects and relations which exist between the two national associations, advocating their union upon some broad plain which will increase and preserve their activity and usefulness. We have intentionally refrained from offering an opinion upon the advisability of such a union, and as the matter has been placed in the hands of five members for joint consideration with a like committee of the Western Association, will consider it the private business of the associations until definite action has been taken by the committees. The final report will be looked forward to with much interest during the coming year, and each member should weigh the question carefully; first, from the standpoint of "Is it best?" and second (as the boards of directors of each association favor such a union), in what way can it be best accomplished. Government building received a large share of attention before the convention, first in a paper by Miflin E. Bell, late supervising architect of the United States, followed by a paper upon the details of a model government building by John Moser, of Washington. Quite a radical change was made in the election of officers, the custom of the Institute in vogue for so many years, that of returning the same board to office, being broken. The venerable and respected president, Thomas U. Walter, of Philadelphia, having accepted the office a year ago under protest, and only upon condition that he should be relieved at the expiration of the term, Richard

M. Hunt, of New York, was elected president. A. J. Bloor, who has had more than any other member the responsibilities of the Institute upon him, asked to be relieved, and Henry J. Potter, of New York, was made secretary. Mr. O. P. Hatfield was reëlected treasurer; the board of directors and standing committees more largely express the national character of the organization by including members from the West and South as well as East. The Chicago architects entertained their guests royally. The omission of the usual official banquet, and the series of "lunches" which were inaugurated in its place was voted wise, as the sociability of the latter made these meetings, after the work of the convention, most delightful.

TO many of the architects present it seemed unfortunate that the exhibition of pictures was not made in the building where the convention was held. The duration of the convention was so short, and the time so fully occupied that the drawings and photographs sent for exhibition would have been much more generally seen had such been the case. Moreover, there were galleries in the Art Building which were vacant, and which could undoubtedly have been obtained, where some general effect of the pictures could have been made; where each picture could have been well hung; where a number of spectators could have gathered, and where would have been possible that discussion and comparison which was the avowed purpose of the exhibition. As it was, the exhibition was remote from the place of meeting, and the space given to pictures very meager. Many of the best pictures, often of notable work, by eastern architects of the highest standing, stood upon the floor, reposing against a patent blind, or slovenly supported by a new form of water-closet. On the contrary, glaring water-colors of bad designs, by totally unknown men, were given most prominent places. All this was the result of an unfortunate error of judgment in selecting the place of exhibition, which resulted in general indifference to it. Probably half of the architects present at the convention were scarcely conscious that there was even the pretense of a grand exhibition of architectural illustrations; and those who realized that there was such a pretense gained little by their knowledge, for a "private view" offers few advantages either of pleasure or profit when the spectator is compelled to stand in dark aisles, so narrow that his eye is not further than four feet from the picture. The drawings will be sent to the convention of the Western Association at Cincinnati, and though not the largest collection exhibited in the West, with the additions that will probably be made, will be one of the leading features of that convention as, but for the circumstances referred to, it might have been of this.

REPRESENTATIVES of the associations interested in the establishment of a uniform system of contracts met at Chicago, October 18. There were present, the permanent committee of the National Association of Builders, consisting of E. E. Scribner, of St. Paul, chairman, P. B. Wight and George C. Prussing, of Chicago; and the temporary committees of the Western Association of Architects (of thirteen members, representing that number of states). Architects James F. Alexander, of Indiana; H. P. McDonald, of Louisville; Eugene H. Taylor, of Iowa; G. B. Ferry, of Wisconsin, and George W. Rapp, of Ohio and of the American Institute of Architects; E. H. Kendall and A. J. Bloor, of New York. The subject was generally discussed, and the resolution passed asking that a permanent committee of three be appointed by each of the architectural societies.



Suggestions toward Harmonizing Architectural Associations.*

BY D. H. BURNHAM, F. A. I. A.

WITH so many architectural societies, filled with able men, there should be nothing too hard for us to do. But while there is good feeling between the different organizations, nothing requiring coöperation has been carried out by them. If all had the same definite views and steady purposes more would be accomplished, but until they have there will be wavering interest and semi-isolation, and lacking the weight of authority, all important efforts will be like balls shot from a Roman candle, brilliant and well directed, but without power to penetrate. A few local bodies do accomplish something in a local way, also by reading papers and by specific discussions, but this is nearly all. To go much further would need coöperation, which does not exist. Nor can national societies do much more than local ones, because they have no power to enforce their ordinances. And yet there is work to be done, which if not new, is very important to us all.

To exist, Art needs sympathy, and to grow it needs that sort of criticism which ennobles both artist and critic. Therefore kindly intercourse among architects is useful and should be cultivated; the more because social life both spurs to effort and helps one to keep a check upon his selfishness. A man when tempted may wrong his fellow, but is less likely to when both are of the same society, in which he must endure the reproachful looks and scorn of mutual friends. Members of any organization hate to fall below its average beliefs, no matter what its practice may be.

There is growing need for better training of draftsmen than our practice now affords, yet there is little chance but in offices for most of these boys to learn. They need schools or lectures, or both; but having neither, they fall far below their own possibilities. The work of changing this state of things should be ours. Where there are no technical schools we ought at least to establish some systematic method of training, perhaps by lecturing ourselves, no matter how slight or imperfect results may at first be obtained.

Since the schedule of fees was first printed our methods of work have improved. The amount of drawing alone then done on a given job in the best office would now be regarded as shamefully superficial in the poorest. It costs, not twice, but many times the sum it used to to complete the office work of any building. We are more thorough now and should be paid in proportion.

Our efforts to throw open the government work to the profession should continue, for the public surely has a right to the talent of its greatest architects, and the profession has a right to the work. Besides, it is a fact that public buildings badly designed depress and injure the artistic sense of the whole people, instead of inspiring to better taste as good ones would. The national structures are the landmarks of our professional horizon; they are most prominent where most men are gathered together,

* Paper read before the Twenty-first Annual Convention of the American Institute of Architects at Chicago, October 20, 1887, on "Suggestions toward the best and speediest methods for harmonizing and utilizing all the agricultural societies in the United States, so as to secure the most good for architecture, for the public and for the profession in America; due regard being had, as concerns means, alike to individual energy and enthusiasm, and to associative experience; and, as concerns ends, alike to local sentiment and to national reputation."

and no one can help but see them. So for good or ill we are all profoundly affected by them.

Statutory revision is necessary, not by congress alone, but by the legislatures of every state in which the practice of architecture is not already restricted to licenses possessing competent diplomas, or who have passed examinations before state boards.

But more important than anything yet attempted to be done by any society, is the compiling and publishing of a code of ethics for architects; which of course shall show what is good, but especially what is professionally damnable in our dealings with each other. Let this be rendered in strong, clear type, and put upon the desk of everyone, and it will at once have a most salutary effect upon the fee-cutting, backbiting, backstair climbing crowd, and remove temptation from the lives of those yet uncorrupted.

To be sure the above list does not present much that is fresh. Most of the subjects have been themes for discussion this many a day, but the truth remains that we have scored very few successes with them, and have made many failures. There has been too much energy wasted, and now we ought to try and weld our heterogeneous elements into a more effective whole. There has been no lack of material or effort, but our struggles have been scattering and uncertain, so that lately our meetings have commenced to be nerveless in many cases, with a growing apathy regarding matters of reform and a growing reliance upon good social times when we meet. In fact, some of the chapters and associations are practically dead, except for banqueting and the election of officers.

As a whole, the architectural societies have had plenty of time to show what they can do. But if measured by our hopes of what we have expected, their work has not been satisfactory. We have strength enough, but it has not been brought to bear at the right time and place. No one can doubt that we have tried hard, but taking the entire record we have only won that kind of success most near akin to failure. And now three courses are left to us: To give up entirely, to go on as we are, or to reorganize. The first we cannot think of; the second we are dissatisfied with; and we must look to the last for the only chance to justify continued existence. If the latter way be chosen, it is plain that some, if not all, of the old societies must dissolve and pass away. There have been too many, and their chief faults have probably arisen from this. Since some must go, to avoid wounded pride or vanity would it not be better for all the old societies to give up their charters and for the members to join together in a single new body where shall be centered all their social activities, their art discussions and displays, their reform agitations, and finally their full authority. In this case there will be some hope for effective work on the lines of activity proper to architectural associations, and we shall have the chance to finish some of the many things we have commenced.

I do not know, in view of fresh organization, that there is today a single society or name to be kept, unless perhaps it be the title "American Institute of Architects," and this only because its dicta are the basis of so many court decisions in every state, and because its name and reputation are incorporated in the records of many foreign societies. This question, however, is for some future committee to deal with. The matter of naming is of little consequence compared to what the constitution and by-laws shall be. If the name of the American Institute or any other society be retained, it must not mean that their organization shall be kept as it is today, it must be radically different. The present condition of things is as follows: We have many societies scattered through the country, whose members have the privilege of attending the annual conventions of either one or both the national gatherings. The change should not do away with the system of local societies nor the valuable work they are capable of, for the localities in which they are established. But there should be a national controlling body in general things of practice, the members to be elected from the local ones. The annual meetings of an elected body would not be pleasant gatherings, no man feeling any particular responsibility; but earnest meetings of those best qualified to act, each one having a sense of responsibility, a clear purpose, and the obligation upon him to do hard work.

A small body of carefully selected men meeting annually for definite purposes, and intrusted with full authority is what is needed. It is not in the scope of this paper to particularize much about it or its dependent societies, any more than to say that the first should act in matters applying to all architects throughout the country alike, and the latter in matters of social, artistic and local work. How the local organizations should be formed, where and when the members of the controlling body should be elected, is matter for others to consider.

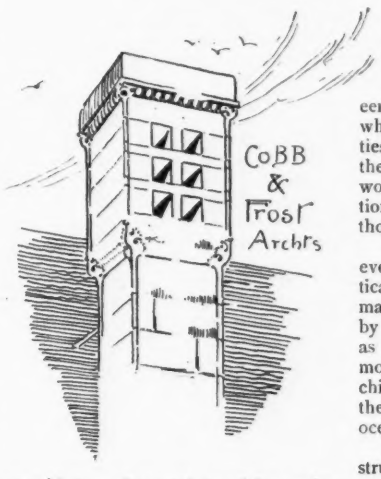
There should, and undoubtedly will be a memorial hall where may be gathered the portraits, busts and mementos of our mighty dead, and in which shall be our national archives and library. The only place where this building can be erected without raising local feeling, is at Washington, and there it should be.

The office of representative at Washington should be difficult of attainment and of high honor. I believe the men should be elected for a long term and that all elections in architectural societies, whether national or local should be absolutely without nominations being previously made. Men ought to ballot without being prompted or checked by any committee or clique, and it should be cause for expulsion for any man to be found directly or indirectly soliciting office for himself, and there should be some penalty attached to his friends doing it for him. The judgment of a society is always best as to who is fitted to serve it, if the men are left to themselves.

A committee should be appointed by this meeting to act with another from the Western Association. These two should be empowered to meet and prepare a plan and recommendation to be submitted for consideration of both bodies in 1888. They should go into the matter of advisability of a complete new organization, and of how it could be brought about; of what in the main its form should be; how first elected; how the local bodies might come in and be used, and finally should give an outline of the constitution, its work, and the chances for its being successful in the direction we shall want decisive action in.

Where the Line of Demarkation between Engineering and Architectural Practice is to be Found.*

BY JOSEPH M. WILSON, A. M., C. E., F. A. I. A.



ENGINEERING covers a broad field. One eminent as a professor and writer on this subject† has said that "Engineering is the art and science by which the mechanical properties of matter are made to serve the ends of man," or in other words, it is "the useful application of mechanical science to those ends."

In the widest sense, almost every one is more or less a practical engineer, the man who makes a passage across a torrent by means of a fallen tree as well as the one who constructs the most complicated piece of machinery or rears a lighthouse on the most exposed rock of the ocean.

Little or nothing can be constructed or built without encroaching on the province of the engineer.

The objects treated by the science of engineering may be classified under two heads, structures and machines, the former being those "combinations of solid materials whose parts are not intended to have relative motion, and the latter those whose parts are intended to have relative motion and to perform work." A machine may be a structure, but structures are not necessarily machines. In the words of the same writer, "the theory of structures, which is founded on the principles of statics or the science of equilibrium, is divided into two parts, relating respectively to the two requisites of stability and strength; stability being the power of resisting forces tending to overthrow the structure, or to derange the parts of which it is made from their proper relative positions, "and strength, the power of resisting forces tending to alter the figures of those parts or to break them in pieces."

It is evident, therefore, that the engineer to be proficient in his calling, must inform himself on the special properties of the materials employed in constructions, whether earth, stone, brick, timber, iron or other substance, as well as on the kind of treatment or workmanship to which such material may be subjected, and the form in which it may be most advantageously used. He must learn by practical experience of the action of materials under service and in all accidental conditions to which they may be exposed, and by this experience he should be enabled to allow for all such conditions and for variations which may occur in the recognized properties belonging to these materials.

Engineering is an exact science, and its application to any construction involves the principles by which the structure may be built, in the whole and in each part, according to the best design for accomplishing the uses to which it is to be adapted, and for resisting the forces that must be sustained by it. The more nearly these conditions are fulfilled, the more efficient, durable and economical the structure will be, and also to the educated or artistic eye the more beautiful, as the lines and proportions will be the best and truest to satisfy the purposes of the structure.

Engineering may be divided into two grand departments, civil and military. With the latter we need not now be concerned.

Civil engineering, in its most general signification, may be said to involve those applications of mechanics and the arts of construction which treat of the formation and building of lines of transport for freight and passengers, whether by water, highway, or railroad; the construction of works for water supply and drainage; the theory and practice of mining; and the formation of harbors and works for protection of the coast and for aid to navigation. All of these works comprise "combinations of structures and machines;" "structures in earthworks, as cuttings, embankments and reservoirs; in masonry, timber, and iron, as bridges, viaducts, aqueducts, tunnels, locks, basins, piers, and breakwaters; machines, such as carriages, locomotive and stationary engines, lock gates, sluices and valves, pumping engines and dredging machines." And in the "old days" the civil engineer was expected to be able to undertake all of these objects. In modern times, however, business has so much increased in each department that engineers can afford to devote themselves to particular subjects, and civil engineering is rapidly dividing into specialties.

One of these may be considered as involving "the laying out and constructing of lines of transport and selecting the sites for works in the best manner possible with reference to the features of the country, so as to secure economy in execution and working."

Hydraulic engineering takes up the question of water supply, and requires study of the laws of rainfall, supply and flow of streams; sanitary engineering comprises matters of drainage and ventilation; the engineer of coastworks must understand the action of waves and tides, the laws of river and ocean currents, the formation of sandbars, etc.; the mining engineer requires knowledge of sinking shafts, of tunneling, and must be familiar with geology, mineralogy and chemistry; the mechanical engineer must be able to consider all questions of machines, motive power, etc.; the electrical engineer manages all matters in the application of electricity to the uses of man; the bridge engineer constructs bridges; and the

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† Professor Rankine.

building engineer, or, may we not say the architectural engineer, takes up all questions in relation to the construction and strength of buildings.

Architecture, strictly speaking, is a fine art; as Fergusson expresses it, the "queen of the technical arts;" "the art of ornamental and ornamented construction."

While architecture has its "roots in pure utility," it is a question whether, when the first shelters were constructed, it was not engineering ability that accomplished the work, architecture only developing when man began to ornament and to decorate his constructions in order to gratify his inborn "craving for beauty and love of proportion."

The pure architect begins where the engineer ends. Without the engineer the architect would give strength to his constructions merely by satisfying his eye and sense of proportion, leaving the rest to chance. So soon as he begins to work up the sizes of the parts for the loads they have to sustain, or to consider the strength of materials and the forces to be resisted, then he becomes an engineer, an architectural engineer.

One may, by study and experience, become an expert on the subject of architectural engineering, yet never make an architect, lacking talent and artistic taste; but the field of the pure architect is a very limited one. All engineers cannot be architects, but all practicing architects must be engineers, more or less, and the more ability one possesses in this line, the more chance for his success in the great constructions of the day.

To quote Fergusson again: "It is not essential that the engineer should know anything of architecture, though it is certainly desirable he should do so; but on the other hand, it is indispensably necessary that the architect should understand construction." "Without that knowledge he cannot design." If he feels inability in this direction he should associate with one who can supply the deficiency, and reserve to himself the artistic department of the profession. It is very seldom that perfect artistic and perfect mechanical ability can be found in a single person, though if one who is an engineer by education feels that he has this artistic skill, there is no reason why he may not make one of the best of architects.

It may be seen, therefore, that no strict line of demarkation can be drawn between engineering and architectural practice; that one merges into and becomes an essential part of the other, architecture being all the more beautiful and satisfying, as well as practically correct, when its lines correspond with the lines of engineering construction. "The one is the prose, the other the poetry of the art of building."

Manual Training as Applied to the Building Arts.*

BY CHARLES H. HAM.

KEYSTONE OF VAULT AT MAULBRONN

STABILITY, utility, beauty—these are the attributes with which the architect seeks to endow the crude materials placed at his disposal—wood, stone, and iron. They lie in a confused mass at his feet, and he is to cause them to be fashioned, piece by piece, and assign each to its due place in the structure designed for the use of man.

Turning now toward the East he passes in review the architectural triumphs of the ages, the pyramids of Egypt, the temples of Greece and Rome, and the cathedrals of medieval Europe. Inspired by the imposing retrospect there rises before his eyes the vision of a building in which proportion, harmony and symmetry are happily blended. Fondly cherished, this child of the imagination, the shadow of a design, a filmy fancy, floats in the mind of the inventor, waiting to be transferred, a thing of beauty, to the solid earth. With an expression of rapture he essays to speak, to describe the vision he sees, but the first word sinks away into a sigh of despair.

So it was ever, from the beginning, and ever shall be to the end, that imagination halts on the verge of performance, and speech fails at the critical moment; and it is always the hand that comes to the rescue of both.

It is only with the pencil, in the trained hand, and in a universal language — a language as plain to the Russian, the German, or the Frenchman as to the American — that the divine dream of genius can be rendered visible, in lines, shades, angles and curves, to the gaze of an admiring world.

And so it is in every step of the builder's art. He who suggested that the branches of a tree be pulled downward and held by clods of earth to form a shelter, was the inventive spirit of the primitive man who shivered in the freezing blast. But he who seized the branch with his hands, and he who pinned it to the earth with a stone—these, not less than the other, made the rude house.

From the cave, and the mud hut, which protected the race in its infancy, to the sumptuously appointed city mansion of the present time, is a long progress, consisting of many steps; but these steps were not taken by the mind alone. It is only in the realms of mythology that the goddess, full-armed, is created by a thought. In real life things of use and beauty spring only from thought and action combined. In the mind of the inventor the machine is an idea, not a thing. It is the Midas-like touch of the hand that converts the idea into a locomotive, a steamship, or a cathedral. The steam engine of Watt, Fulton and Stevenson existed dimly in the mind of Hero of Alexandria; but to develop Hero's thought required two thousand years of experiment.

So of architecture. There came a time — man having long since emerged from the savagery of the hut — when the designer of rude houses and temples, dreaming under the majestic arches, and in the long drawn aisles of the forest, saw, with prophetic ken, the sculptured splendors of the Parthenon, the vast unity of the Coliseum and the symmetrical outlines of the dome of St. Peters. How many thousand years were passed in reaching the dreamer's ideal is a secret of antiquity, destined to remain forever unrevealed. But of all the long progress not a step was taken without the aid of the hand.

From the first to the last operation in the builder's art; from foundation to turret of every edifice; from the first brick laid in the wall to the last touch of the painter's brush, the hand is the supple, cunning agent. It quarries and adjusts each stone in its place, fashions every timber, makes the mortar, carries the hod, wields the trowel, molds the glass, drives every nail.

These services are humble, but they are not mean; no service that is useful to man is ever mean. Plato's dogma, "all the useful arts are degrading," is the most pernicious as it is the most potent evil ever exerted upon the human race. It is in accordance with the eternal fitness of things that this dogma should have had its origin with a people who treated women with brutal contempt, assassinated infants, and taught their idle sons to hunt and wantonly slay peaceful slaves found toiling for their masters in the fields. But it is as strange as true that this dogma, shorn of its more repellant features, still controls, autocratically, all the colleges and universities, and most of the public schools of the civilized world, and perverts, almost beyond redemption, the mind of every youth brought under its malign influence.

But the work of the hand is not confined to the coarser departments of art. It traced on paper the builder's initial thought, a thought too subtle and unsubstantial for expression in words; and of the mind it was the confidant and coworker from the beginning, as it must be to the end; for the hand not only lays the foundation stone, rounds the dome and points the spire, but adorns with splendor every part, enriching now with chisel now with brush, o'erlaying all with a garniture whose design is not more chastely beautiful than finely wrought.

In the presence of the works of Phidias, of Michael Angelo, or of Meissonier, we are awed into reverential silence. We think of the products of the chisel and the brush as direct emanations of the brain. But Mr. Ruskin, with fine discrimination and insight, calls attention to the fact that "all the great early Italian masters of painting and sculpture began by being goldsmiths' apprentices, and that they felt themselves so indebted to, and formed by, the master craftsman, who had mainly *disciplined their fingers*, whether in work on gold or marble, that they practically considered him their father, and took his name rather than their own;" and Carlyle says: "Venerable to me is the hard hand; crooked, coarse; wherein notwithstanding lies a cunning virtue, indefeasibly royal, as of the sceptre of the planet. Venerable, too, is the rugged face, all weather-tanned, besoiled, with its rude intelligence; for it is the face of a man living manlike."

The works of the sculptor and painter are not more direct emanations of the brain than are the humbler products of the toil of the craftsman. Both spring from that cunning virtue, "indefeasibly royal," that lies in the cultured hand. Both are essential to man's progress, and both are equally honorable.

The decrees of the ancients consigning the artisan to servitude, poverty and shame, and lifting the artist to the Throne of Things, were brutally unjust. The term fine arts, as applied exclusively to painting and sculpture, is a misnomer. The useful arts are finer than the so-called fine arts. The latter are confined within narrow limits, while the scope of the former is coëxtensive with the resources of nature. There is more imagination, sentiment and humanity in a locomotive or a steamship, than there is in the statues of Praxiteles, the paintings of Raphael, or the works of Shakespeare.

The relation between the useful and the so-called fine arts is undergoing a change — a transposition. The useful is about to take its rightful place in the order of excellence — the place too long usurped by the merely ornamental. In architecture the true relation between use and beauty has always been observed to a far greater extent than in any other department of art, owing, doubtless, to the law of necessity, the natural law of Vitruvius — stability, utility, beauty. The essentials are in the order here set down; in the absence of the first two qualities the last is vain. But even in an art so perfectly developed as architecture there is in progress a radical change, and it is in the direction of greater utility. Thus the world moves always toward a higher appreciation of the useful arts; and this is a natural law, for the useful arts differentiate the civilized from the savage man. They are the true measure as well of moral as of mental progress, and every step in this direction confers a new dignity upon manual labor.

We are thus fast approaching an age and condition of things when Rousseau's anathema against idleness will be accepted as an imperative social law: "The man who earns not his subsistence, but eats the bread of idleness, is no better than a thief."

Manual labor, then, being the very soul of the builder's and every other art, and the useful arts being the true measure of civilization, the coëducation of the mind and the hand becomes the first duty of society or the state. And this is plainly the road to the solution of the labor problem, for it is idle to dispute the proposition; there *is* a conflict between labor and capital, and it will never be settled until it is settled according to the immutable laws of justice. The way to such a settlement lies through education, such a practical training of mind and hand as shall dignify labor by enlightening it, and so lead to such a system of coöperation as shall result in the fair distribution of all the fruits of labor among those who contribute, manually or mentally, to their production.

*Paper read before the Twenty-first Annual Convention of the American Institute of Architects at Chicago, October 20, 1887.

The Paramount Requirements of a Large Opera House.*

BY DANKMAR ADLER.

OUR secretary has requested me to submit a paper upon "the paramount requirements of a large opera house or theater as regards site, construction, disposition of space, day and night illumination, arrangements for water supply, ingress and exit, heating, ventilation, hygiene generally, and provisions against conflagration, etc."

The following is an effort to comply with this request:

As we are all American practitioners whose work is confined within the geographical limits of the United States, and therefore within the financial and other limitations arising from our national peculiarities, I will not attempt to describe the ideal large opera house, of which so many examples exist in Europe, but will confine myself to the essentials and peculiarities of an American theater and opera house containing upward of 3,000 seats, and capable of serving also as a concert or convention hall.

The site of our building should be an open square surrounded by broad streets; and in no case must a site be chosen which does not permit the disengagement of the building on at least three sides.

The construction of such building should be of the most solid and enduring materials, so disposed as to produce a building as nearly fireproof as modern science and art can make it. The ever changing conditions of desirability of location so characteristic of American cities must be disregarded by making stability and permanence of structure paramount considerations.

In the disposition of space we are confronted by limitations which prevent the fulfillment of ideal requirements. Municipal aid is with us never extended to the builders of an opera house, which must therefore be erected by private capital, of which it seems impossible to secure as much as is required for erection and maintenance without connecting therewith some means of commercial utilization, so that a revenue sufficient for the maintenance of stage and auditorium during the unavoidable periods of disuse may be obtained.

This disposition of important parts of the ground, generally the street frontage, increases the difficulty of planning the lobbies, foyers and corridors, so desirable for a structure of this kind; but whatever the wants or necessities of the commercial adjuncts of such building, there should always be lobby space enough to hold almost the entire audience.

In determining the space to be assigned to the stage, it must be remembered that without suitable provision for presenting to the public scenic and dramatic effects on a far grander scale than can be produced in the ordinary theater or opera house, there would be no justification for the existence of a building of the class which I am endeavoring to describe. And yet, too much space should not be assigned to the stage, as the commercial result of the enterprise must be kept in mind, and this requires a reasonable proportion between the cost of producing a good opera or a spectacular theatrical performance and the size of the audience which can be drawn to see the same. We have no subsidy from municipal or general government to make good deficiencies which would arise from the cost of performances given upon a stage of the proportions as compared with auditorium found in the opera houses of the Old World. Besides, we cannot in any city of our country maintain, still less carry with a traveling company, a permanent well-trained chorus, corps de ballet, or a corps of trained supernumeraries sufficiently large to fill a stage approximating in size that of a European house of the first rank.

A very large space should be assigned to the mechanisms for the production of scenic transformations and illusions. Nothing is more annoying to American audiences than the excessively long waits between acts so characteristic of operatic performances on a large scale as we know them on the American stage. And while the almost magic transformations characteristic of the stage of the Madison square theater are impossible of attainment under ordinary conditions, I believe that a happy mean can be found between these and the evil before referred to. One of the means of securing this end would be an effort to keep all moving and movable parts incidental to the production of scenic effects, transformations, etc., within reasonable bounds as to size and weight; and as far as possible to make transformations by upward and downward movement of the stage paraphernalia, by which means the horizontal dimensions of the stage can be minimized, although great depth below and height above the stage floor would become essentials. Liberal allowance of space for dressing rooms, and for storage of scenes, properties and costumes must not be forgotten.

It is advisable to endeavor to secure at least partial sunlight illumination of the house, and thus avoid the expense of artificial illumination for daily cleaning, rehearsals, and for daylight assemblies, such as conventions, mass meetings, concerts, etc., when scenic effects are not to be produced. This daylight illumination will be almost invariably imperfect, for corridors, lobbies, etc., and in many instances the business adjuncts of the building will cut off all means of illumination except skylights, and these can rarely be made sufficient to light all parts of the house. Means must be provided to shut off when necessary all sunlight which might interfere with the realization of scenic effects.

Day and night illumination of the auditorium and stage when occupied for a scenic representation of any kind must be by artificial light. Of the artificial lights known to us, the incandescent electric light is the only one to be seriously considered, in the design and distribution of which every effort should be made to secure a uniform and general illumination, a lighting up of all shadows under galleries, and an illumination which will reveal clearly all faces and toilets without bringing them into a trying glare.

* A paper read before the Twenty-first Annual Convention of the American Institute of Architects at Chicago, October 20, 1887.

In arranging the lights of the stage, it is necessary to see to it that the light falls upon the faces of the performers in such manner that there will be no shadows which produce distortions of their features. It is well also in arranging lights, particularly those on and immediately in front of the stage, to interpose reflecting surfaces which throw the light where it is required and shut out its glare from the direct line of vision of the audience.

In the construction and laying out of the engines, dynamos and wiring for electric light, an effort should be made by suitable subdivisions, to prevent the possible putting out of all the lights by accident to or interference with the machinery or wires. The practice of European theaters in providing as a safeguard for such contingency a system of oil lamps or wax candles arranged and always kept burning around the walls of the auditorium and in all the corridors, is worthy of imitation.

The means of ingress and egress should of course be ample. No allowance less than three feet for every two hundred persons should be considered in determining the width of aisles, doors and stairways. A large number of narrow aisles is to be prefered to a small number of wide ones. Aisles should lead as directly as possible to doors. As before stated, the corridors and lobbies should be of sufficient size to hold more than one half of the audience. The stairways must have frequent landings and the exits should be so disposed as to tend to disperse the audience as rapidly as possible.

Where audiences are very large, the means of ingress become quite important and every facility must be extended to those who purchase their tickets at the beginning of a performance, and these should be kept out of the way of persons who come already provided with tickets, and every means must be used to facilitate the entrance of the public into the building, and to prevent blocking up of halls, corridors, or stairs.

Heating and ventilation present unusual difficulties in a house of this kind. No dependence whatever can be placed upon doors and windows. The air must be warmed in winter and cooled in summer. A sufficient volume of air for comfort and for health must be forced into and removed from the room by mechanical means. The temperature and hygrometric condition of the air admitted must be under perfect control, and the means for exhausting the air must be so arranged that the vitiated air in its progress to the exhaust ducts does not come in contact with the heads of any part of the audience, and that "drafts" are prevented. It is desirable for acoustic effect, to have all air currents tending from the stage outward. It will be easiest to attain these ends if the fresh air is chiefly introduced at and from the top and in greatest volume on and near the stage, and if the exhausts are in and near the main floor and in and near the floors of the various galleries and balconies increasing in capacity with their distance from the stage. One-third of the air ducts should open on the stage, but these ducts must be under the immediate control of the prompter so that they may be closed when smoke is produced on the stage and while the curtain is lowered, and turned on again as the curtain is raised.

Wherever possible the galleries should be disengaged from the walls behind them, so as to permit the free passage of air currents through the spaces covered by the galleries.

As a protection against drafts from outdoors, there should be, if possible, at least four sets of doors between the chief lobbies and the outer air, and each of the spaces inclosed by these doors should be warmed.

The means of cooling the air for summer ventilation must be refrigerator machines. It is impossible to handle successfully a sufficient quantity of ice for our purpose. In dusty and smoky cities an apparatus for washing the air before it is introduced into the building should be provided.

As it would be too expensive to call into use the means of heating provided by the ventilating system for the daily cleaning of the house and for rehearsals, there should be a sufficient quantity of direct radiating pipes and coils on the stage and in the auditorium to warm the house to a moderate extent. These would not be used when the house is occupied by an audience, except perhaps in the coldest weather.

Foremost among the necessary hygienic arrangements is the system of ventilation before described. Next in order are the plumbing fixtures and pipes, upon which even greater care must be expended than in ordinary buildings. During the periods of disuse to which houses of this kind are subject, the evaporation of water from the traps, or syphonage of traps, or leaks of soil or waste-pipes, would produce most disastrous results. These contingencies must be guarded against with the utmost care. During these same periods of disuse in winter the danger by freezing of water in the pipes is a danger against which precautions must be taken.

The provisions against conflagration are a most fruitful topic. As it has been assumed that the general construction of our house must be fireproof, we have in this already a most potent safeguard against conflagration. If we carry this fireproof construction further and use for the framework of the stage, stage mechanism and paraphernalia, incombustible materials, and banish gas from the stage entirely, using only electric light, not only for white light but also for the effects of colored light, we shall have eliminated entirely the danger of disastrous conflagration from our house. It will, however, be impossible to avoid entirely the use of canvas for scenery, and the use of wood for the lighter and more temporary accessories of stage setting, and the large quantities of costumes and properties which accumulate about such a house are necessarily combustible. While a fire among these cannot be considered a menace to the structure, still there should be means at hand for readily extinguishing it; such as the thorough training of the stage attendants in the use of water in the tanks and pails, in the use of hand pumps, hand grenades, chemical fire extinguishers, etc.

But although the building be indestructible by fire, and although the gathering of headway by a fire is almost absolutely guarded against, alarms and frights may arise which in so large an audience would have serious consequences. A strong drop curtain of incombustible material used daily, so as to be always in readiness for instant use in an emergency, will shut off from the view of the audience the accidental burning on the stage of small pieces of scenery, etc., as may have been left unprotected. A very large and high smoke duct above the stage, the valve of which is connected with the prompter's stand, will permit the immediate and rapid escape of smoke produced by such fire, or use of firearms, etc., on the stage.

It is safe to assume that an audience in a house of this description is absolutely safe from fire; that is, that no combination of circumstances can arise by which any member of the audience can be injured in life or limb directly by the effects of the fire. There always exists, however, an element of danger in the liability in large assemblies to become panic-stricken and uncontrollable. The general solidity of construction and general safeguards against fire mentioned before will do much toward preventing a panic in the audience. Arrangements for averting the danger of the going out of all the lights in the house will eliminate another possibility of panic and danger.

The foregoing provides sufficiently for the safety, comfort and health of the audience; but all of these will be as naught unless the acoustic properties of the house are such as to permit the easy and distinct transmission of articulated sound to its remotest parts. The suggestions given under the head of ventilation will be one of the means necessary for securing this end.

In addition to this it should be said in a general way, that in the construction of the banks of the seats, Scott Russell's isacoustic curve should be adhered to as far as practicable. That wherever possible resonant materials should be used in the construction and facing; that the use of large, hard, smooth surfaces should be avoided; that walls and ceilings should be well broken; that the width and height of the house should be smallest at the stage, and that these dimensions should be increased with the distance from the stage, and that all our measures should tend toward the reduction to a minimum of the volume of air to be set in motion by the voices of speakers and singers, also to such arrangements of surface as will tend to direct the sound waves toward the audience, and such control of the air currents as will prevent the dissipation of sound waves in space.

I will add in this connection that a comparatively low proscenium and not excessively wide curtain opening is desirable as one of the first conditions of this system of construction for acoustic effect. If it is intended to use the house for conventions or concerts by mammoth choruses, the proscenium opening may be so constructed as to leave its width adjustable at pleasure, and a temporary ceiling may be suspended at or near the level of the crown of the proscenium arch over the stage and hung with a downward slant toward the back of the stage.

As I have said before, a modification of Scott Russell's isacoustic curve should be used in laying out the banking of the seats. This modification is for the purpose of obtaining an isaoptic line, and consists in lowering the level of the focus to which the curves are drawn from the level of a speaker's mouth to the floor line at the front of the stage and in substituting for a single focus at the middle of the stage, foci tending toward the side of the curtain opening for the respective sides of the house so that the focus of the curve for the seats nearest any one side is at the corresponding jamb of the curtain opening.

It may not be always practicable to follow the foregoing absolutely in the selection of foci for isacoustic and isaoptic lines, but the deviation should never be great, and the nearer the approach to these conditions the easier will be the sight lines for all occupants of the house. It will be found as one of the effects of this system that long, wide, side galleries must be banished.

As Mr. Bloor has well said in his letter requesting this paper, "style is generally conceded to be a matter of taste, chiefly dependent on education or temperament, environment of fashion, or on a combination of these, I have not included it under paramount requirements, but it is nevertheless the crowning element of an edifice in its relations with the contemporary public, and with posterity and history." And I will say upon this head only, that the general proportions and materials of construction of such a building as this justify a general simplicity and demand the utmost dignity of treatment. This simplicity should, however, not become baldness, nor should the poetic element be excluded from the design.

The Essential Features of a Large Opera House.*

BY J. CLEAVELAND CADY, F.A.I.A.

WE shall best understand the essential features of a large opera house if we first consider, though very briefly, the purpose of the building.

These are three-fold—musical, dramatic, and social. The first two are realized in the production of what is termed "grand opera"; works planned upon an extensive scale, requiring large forces, both musical and dramatic, and extensive and elaborate scenery and machinery for the impressive effects desired. It will readily be seen that grand opera must be a very expensive affair; the number of artists and employés in great performances sometimes reaching several hundred. The arrangement for their proper display and action must be very extensive, and the scenery and machinery, both in variety and magnitude, far exceed what is required for other dramatic entertainments.

Preparations of such magnitude and cost for the performances very naturally demand that preparations shall also be made for a large audience to meet the expense incurred, and thus it comes about that a building for a worthy production of grand opera must be an immense one—the forces required to produce it with any degree of splendor and effect are so great that the audience necessary to support these forces must be very large, and in consequence the building of unusual size and costliness.

But so costly are these performances that even the largest audiences will not meet the expense incurred, and other sources of revenue have always been indispensable.

On the continent, government aid has been freely given, both in building and supporting immense and famous opera houses. In this country, where the government is not "paternal," aid has been found in another quarter: the wealthy, fashionable classes, who, even if not caring especially for, nor appreciating deeply the music, find it a peculiar and valuable social feature.

Its boxes afford a rare opportunity for the display of beauty and toilets.

* Paper read before the Twenty-first Annual Convention of the American Institute of Architects at Chicago, October 20, 1887.

They also give opportunity for the informal exchange of social courtesies, being open to select callers through the evening; the long waits between the acts especially favoring such interchange.

If at any time the box is not needed the tender of it to friends is a very handsome compliment, and one that can sometimes be rendered where no other would be suitable.

For these and similar reasons the opera appeals strongly to the wealthy fashionables, who are able to give it the financial support that is indispensable, and so we find the third purpose of the opera house: *the social one.*

The last feature is so important in a financial way that it naturally is the foundation of any enterprise of this kind, and in no small degree determines the size and character of the house; the promoters of the enterprise will first decide how many persons can be secured to engage boxes at a cost of some $15,000 each, with assessments, perhaps, of $1,500 per annum. From fifty to seventy such must be found to raise a fund sufficiently large for a building; not a monumental building, but a capacious, tasteful and fireproof structure, suitable for grand opera.

The fifty, sixty or seventy boxholders must all be eligibly located, in not more than two tiers, which goes far to establish the size of the auditorium.

From the foregoing it will be seen that provision must be made in an opera house for

1. A stage and its accessories on a grand scale,
2. For safely and comfortably seating a large general audience, and
3. For accommodating liberally and elegantly the boxholders who have built the house, guarantee it against loss, and receive their special accommodations as a return for the same.

The limits of this article will permit only a brief notice of the essential features of each of these divisions.

1. *Stage and accessories.*—The stage must be deep, to give the perspective often necessary for fine effects, as well as to permit many scenes to be in readiness at needed points; it can hardly be satisfactory if less than eighty feet from the "tormentors," or perhaps ninety-five feet from the footlights.

Its width will be governed not a little by the number of boxes and size of auditorium, but will probably be nearly a hundred feet.

It will have a deep cellar for disposing of scenery, as well as assisting in spectacular effects, and over the stage a rigging loft, etc., of great height for similar purposes. Spacious scene rooms, convenient to the stage, will be indispensable for a considerable repertoire, as well as rooms for the varied branches that are allied to the opera.

The rooms for the artists, musicians, and employés, will be simple, comfortable, well lighted, and ventilated.

The orchestra will ordinarily be placed in front of the stage, as the leader needs to direct the forces on it as well as those immediately around him; but its pit should be sunk to such a degree that (with the exception of the leader) it does not intrude its writhing, restless members between the audience and the picture before them.

2. *The general audience.*—The portions of the house devoted to it are the parquette and tiers above the boxes. They should be provided with spacious, comfortable seats (as opera performances are usually long), seats from 22 to 24 inches wide and from 37 to 40 inches from back to back. The latter figure allows passage through the rows without great discomfort to sitters.

Spacious dimensions involve cost, but it must be remembered that grand opera is by no means an inexpensive affair.

The seating of the tiers probably cannot be as liberal from back to back, as it increases the difficulties of vision.

These difficulties require most careful study to make the naturally bad seats as good as possible; where they are decidedly bad it is better to remove them entirely and use the space for standing room.

Another important provision for the audience is abundant and easy exits. If possible these should be on three sides of the auditorium, so as to avoid crowding at a few points. Staircases should be built in towers so that, were fire possible in any degree, they would protect from the noise, smoke, and elements of panic. This leads to the further point, that of safety; and for this the building should be fireproof, built almost entirely of masonry and iron, so that it should contain the least possible combustible material to feed a fire; it should be abundantly provided with water supply, and a very large iron tank at the most elevated part of the building (doubtless over the stage) to insure both the quantity and head needed.

The automatic sprinkler, from which much has been expected when placed over the stage, has proved undesirable, as the pipes filled with water (to be in readiness to work automatically) are liable to freeze, and bursting, destroy the scenery underneath.

One more point should be touched upon in regard to the comfort of the audience—the ventilation. This must be done mainly by powerful machinery forcing large volumes of fresh and suitably tempered air into all parts of the house. The products of gas combustion (if gas is used) should be drawn off as far as possible and not allowed to defile the air. In an ill-ventilated house, the long performances toward the last are hardly endurable, and are invariably followed by headaches the ensuing day; surely, the late hours demanded by the performances are quite a sufficient tax for ordinary strength without the addition of blood poisoning, or fouling.

3. *The accommodation of the boxholders or founders of the house.*—Each will have a box which gives a degree of seclusion while allowing a full display of the occupants. The boxes should command a good view; contain, without crowding, about six persons, and to avoid disagreeable jealousies, be equally desirable in size, style, etc. Each box should have a small salon or room opening out of it, to lay off or adjust wraps, etc., or to retire to if indisposed, or have a chat with friends, or partake of refreshments.

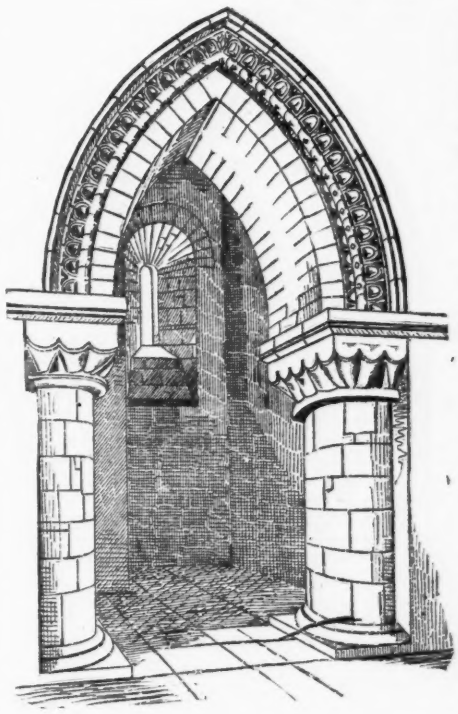
Broad corridors should connect all the several salons, for easy access and interchange of visits.

Large vestibules should be provided for those waiting for carriages; and covered driveways, that they may be reached without exposure.

A few words may be said upon the matter of style. After such a building as has been indicated has been planned, it will doubtless be found that there is little money left with which to make it a noble work of art, or a monumental work. The great amount of solid masonry, the costly use of iron in unwonted forms and shapes, the large area of costly truss-work, and the quantities of fireproofing, will rapidly consume the funds. Happy will it be if the architect acknowledges the situation frankly, and meets it in a simple manner; not doing some cheap and striking thing, or reveling in the latest architectural fashion which will shortly be despised; but following some honored and appropriate style, especially adapted to the economy he must exercise, treats the problem with a simple dignity that will not be tiresome or uninteresting as the years go by.

The Government Building from a Practical Standpoint.*

BY JOHN MOSER, F. A. I. A.



THE subject of the government building having been allotted to me, I will attempt to give a few rambling thoughts on this well-trodden field, that may prove of interest to the profession generally.

In my usual work, since I have been in the government office, I have always confined my best efforts to the successful working out of the instructions of our chiefs—here I will give you my own personal ideas on the subject as to what ought to be, regardless of what has been or is.

The plan of a building should supply all the needed accommodations, for the special purpose for which it is built. Scientific construction should give us a practical, safe, and durable house.

On the art side, the elevations should reflect the character of its projectors in a measure, and especially that of the purposes for which it is intended, and if the architect is an artist, they will also reflect his own personality. Art should aim to make the whole a "thing of beauty," with variety in unity, which when achieved becomes a "joy forever."

The common mind should not be obliged, while viewing a large building, to ask itself the question, is this a church, a castle, or a beer garden? Its forms should not only tell you what it is, but more, they should tell it in elegant and courteous language, not "ill worded" as the old English had it, instead of illiterate. The climatic conditions should never be forgotten, neither here nor anywhere else.

In order to arrive at reasonable conclusions as to the character of our building, we must consider the character of its projectors, the government, as well as the purposes for which it is built, and the situation where it is to be built.

The question, what is a government building? may be broadly answered.

It is the government place of business.

It is the government counting house.

It is the government office.

It is the government workshop or atelier.

This being the case, the utilitarian idea at once becomes the dominating one in its design and construction in a similar way as it does in the usual metropolitan office building, where everything becomes subordinate to its practical working qualities, where we want unobstructed room, plenty of clear daylight (about one-half of the outside wall space should be glass) where there is always an unlimited amount of fresh air under perfect control, all modern improvements and conveniences, and above all, every place easy of access, where you can go without an effort from one place in the building to another without the risk of accidents. It should be perfectly fire proof.

Whichever direction you may go in any of the corridors, above or below, you should always be moving toward an elevator and a stairway. These should always be together.

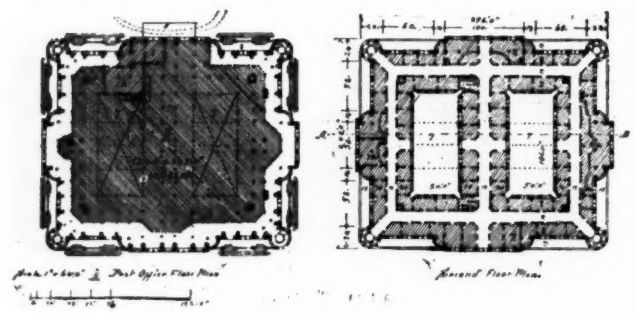
The site, though invariably decided upon and settled by the authorities before it reaches the hands of the architect, should always lie high enough for perfect sanitation, and especially central to the community which it is to serve. There is a very good law now in force, requiring all government

* Paper read before the Twenty-first Annual Convention of the American Institute of Architects, at Chicago, October 20, 1887.

buildings to have a clear air space of at least forty feet on all sides, thus insuring its absolute isolation.

The building will always be in the center of a city, where everything is most crowded, hence there is little need of studying the sky line, for it cannot be seen from any distance; it is always seen at close quarters. Washington is the only city of magnificent distances in this country, and even there you can see but little of the roof of the patent office.

Under these conditions we should make the most of what we can see, the elevations—and here let the details be so designed, that those high up are not lost any more than those near by; the failure to succeed in this has impressed many people with the idea that it should not be done and hence, little by little, we have gone toward simplicity in the higher up forms, approaching clumsiness, while the lower portions of the elevation are often very ornate. We have forgotten that the flowers bloom at the top of the bush, not at the bottom.



Construction should consist of the very best materials throughout for every purpose, and we need not go out of our country for any of these, nor in fact, for anything. All the mechanical work should be done with the most consummate skill and conscientious care, by the very best of workmen.

This building should be built to last forever. It should stand there in its perfect condition and full strength, when Macaulay's New Zealander views the ruins of London from a broken arch of the London bridge. Aside from this view it shall be built better than the common commercial building, for the question of the return per cent on the outlay does not apply here, but it should scatter the knowledge of what perfect building is, throughout the length and breadth of our land.

Special care should be bestowed upon the proper computation of all weights, strains and thrusts and ample provision made for the necessary resistance. The bed of the foundation should uniformly carry one and a half, never more than two tons to the square foot of its base. A pressed-brick pier six times its width high should never be loaded with more than fifteen tons to the square foot of its section, or one nine times its width high, eleven tons, and so on. A safety factor of six should universally be adhered to.

The force of the water supply should be strong enough to overtop the building. Firecocks, with hose attached, should not be more than seventy-five feet apart throughout the building. All watermains and pipes of every description should be so housed as to make freezing impossible.

There should be separate nests of closets on every floor except the first, the postoffice floor, one for males and one for females, with the necessary lavatories, etc., as usual in a first-class office building. The various nests of closets should be above one another, and the different pipes should be everywhere accessible. The plumbing should be thoroughly sealed and basement walls have an insulating course of asphalt to guard against capillary attraction.

Two or four ventilating shafts, six feet square inside, should run from the basement through the roof, with the usual metal smokepipe in the center and the customary ventilator on top; the smokepipe heating the air space causing a suction upward, the bottom being hermetically sealed. Separate foul-air ducts should tap the floor of every room and lead to one or the other of the stacks, thus creating a current from the floor of every room up through the roof, the size of the room determining the size of the foul-air duct leading from it. Steam heat, with direct radiation, is probably the most practical way of heating a large building; but the radiator should stand near the outside wall, and a fresh-air duct furnish the air to be heated direct from the outside, because if no air duct feeds the radiator it will draw its supply from the floor, where the worst air of a room accumulates. I am not an expert ventilating engineer, but it seems to me the whole thing in a nutshell is this: The influx of fresh air and the exit of foul should be provided for in equal quantities, forming a constant flow. Heated air of any kind will ascend to the ceiling, and gradually fill the rooms from the top downward, as a tumbler fills with water from the bottom upward. When now our foul-air exit at the floor draws out foul air equal in quantity to the fresh air admitted, a current is created which, though imperceptible in the room, is yet strong enough to carry off all the contaminated air downward to the foul-air register that may be emanating from a crowd. There are various methods of achieving this result in common practice. It matters little which method is used so long as the desired results are gained.

The ingress of fresh air should always be between two and four feet from the floor, so as not to come in contact with foul air at the floor before rising up to the level of a man's head. The world knows but little and cares less for the amount of study there has been given to this problem. Sir Humphrey Davy was one of its pioneers. He tried all sorts of experiments for years on the houses of parliament, spent a great deal of his own private money, which the government, finally, refused to refund, and I recollect a stanza of an epic poem in *Punch* deploring the condition of things, where a man of genius spends his time and money and nobody says "thank you." He had, namely, conceived the idea of admitting fresh air through the floor, and bored holes all over it for the purpose. The poet said:

"Sir Humphrey Davy, he bored twenty thousand holes,
For which the lords paid nothing—d——n their souls."

Grates and fireplaces should be placed in all the private offices, as auxiliaries, in fact, wherever convenient room is at command. All continuous lines of rooms should have doors between them, so that through their transoms a continuous flow of air is created through the whole building.

In the arrangement of the plan ever keep in mind that everything should be roomy and ample. The smaller buildings generally have from two to three stories, the larger from four to six or more. Since the introduction of the elevator, the difference, in a practical way, between a low and a high building has been annihilated, and I will, to avoid confusion, confine my remarks to a large building, say of 200 by 200 or 250 by 300 feet.

In consideration of the fact that all our cities are increasing in size so rapidly, all our government buildings should be so designed as to have double or triple the capacity of present needs when finally completed, and then build only so much of them at the start as is actually required, and later on, in one or two instalments, the balance of it, as it shall be required, so that when all the additions are on it shall be a complete whole, instead of the first part being artistically a complete whole, with later on a lot of additions patched on.

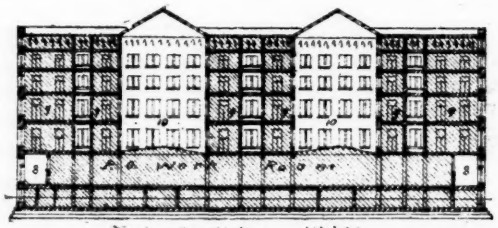
In the basement provision is to be made for one or more boiler houses, coal-pits, etc., with separate closets and exits for the employés. The space not needed for these is all fenced in for the postoffice workroom, which should contain two nests of closets and lavatories, with a separate stairway close to each, leading to the postoffice workroom above. These will accommodate all the employés of the department on both floors.

As a large building always has streets on all sides, the least frequented of these is selected for a covered delivery and mailing platform, sufficiently large to have one wagon receive and another discharge mail at the same time, all under cover. There should be two or more mail hoists reaching the postoffice workroom above, convenient to the mailing platform below.

The basement story is generally twelve feet high, half or thereabouts below grade. Steps should lead up to the main floor, which is always the postoffice floor. The only space here not belonging to it, aside from its corridors, is that occupied by the elevators and stairways, a set of which should be located at each corner of a large building. An elevator running on a skeleton frame with a circular stairway around it, is probably the most compact and practical for this purpose. As our building has streets on all or most of its sides, to be convenient it should have two or more broad sets of steps on each side, with an open covered lobby to each. If possible, most of the steps should be under cover.

From whichever direction you approach the building, as soon as you get near the house you should also be near the steps leading to an entrance, and as the "rich man," "poor man," "beggar man," "thief," all have more or less business here, it is always advisable to have as many public entrances as possible; the more entrances the more convenience. There is no use or need of emphasizing a main entrance, for the business is alike all around the house.

The building on the ground should have little or no breaks in the line; it should be as near as practicable a square or parallelogram. Breaks in the line are required further up in order to get large and small rooms in a line as required, but a straight street line is always best. If the building stands in the center of a large plot of ground, a broken line is always advisable. The postoffice to work to the best advantage requires a large unobstructed space for the workroom, as near as possible like the ring of a circus, fenced in by the box screen from the corridors around it; only one branch of it, the money order office, can successfully stand isolated from the rest, which must all be in one inclosure, or at least communicate.



Longitudinal Section Through Line AB

The offices of the postmaster and assistant postmaster should both top the corridor on the outside and the workroom inward, and be communicating, as both those officials receive visitors from the outside and also need to be in direct contact with the workroom. The postmaster needs a small private office, with closet, etc.; the assistant postmaster needs a vault. A lookout should be provided for somewhere about the assistant postmaster's office, say eight feet high, so as not to obstruct traffic below; from this every part of the workroom, especially every clerk at his business, must be in range of vision, so that an inspector or guard can watch what is going on everywhere. If the place is too great for one lookout to see everywhere, more must be provided for. The money order, registered mail, and stamp clerks need vaults.

Along the box screen which fences in the workroom, the various clerks, for dispatch of business with the public, are located. Every part of this floor, corridor as well as workroom, when all the doors are closed should be full of daylight, no dark corners nor even dim ones. Electric light for nights and dark days. The postoffice department should be closed so that access to the workroom is only possible through the postmaster's and assistant postmaster's offices, and the mailing platform so that every person passing either in or out has to pass the scrutiny of the watch on guard.

The postoffice story should be about twenty feet high in the clear, and this space should be as little encumbered with piers and columns as is compatible with safety. Yet a word of caution here—little by little we have got an enormous structure, all on stilts; we are nearing the danger point here—"*Der Krug geht zum Brunnen bis dass er verbricht*," *und g'schieht nu a mal so was, ist das für G'schicht?*

The upper floors are generally appropriated for the use of the custom house, internal revenue, pension office, signal service, courts, etc. Here we require spacious corridors clear around, communicating with the stairways and elevators at the four corridors. This will leave us a grand court in the center, or if a row of rooms and a corridor are thrown across the center of it, we will get two courts. These should be covered by a glass roof on top and a glass roof over where they strike the workroom, thus affording light to the center of the latter.

Each of these various departments requires a large communicating suite of offices with one large general office in the center. If possible, the various offices of the suite of rooms should be so arranged, that, like in a bank, you can go from one window to another and complete your business with all the departments without going out into the public corridor, which is practically the open street, inside of the house. All the chiefs should have private offices communicating with the main offices, as well as the corridor. All these should have closets with all modern improvements attached, and all clerks handling money or stamps should have vaults. Coat closets, lavatories, etc., should be found among every suite of offices.

The signal service requires a high tower. One of the corner stairways and elevators might be made high enough to overtop all surrounding pinnacles for this purpose.

The upper floor is generally devoted to court purposes. Here are required two court rooms, one about 30 by 40 feet, or 35 by 45 feet. The other somewhere about 20 by 30 feet. Each should have a judge's private room (with all modern conveniences attached) adjoining one side, and a single or double office with vault for the clerks of the respective courts. The district attorney needs a large general and small private office; a commodious office for the commissioner.

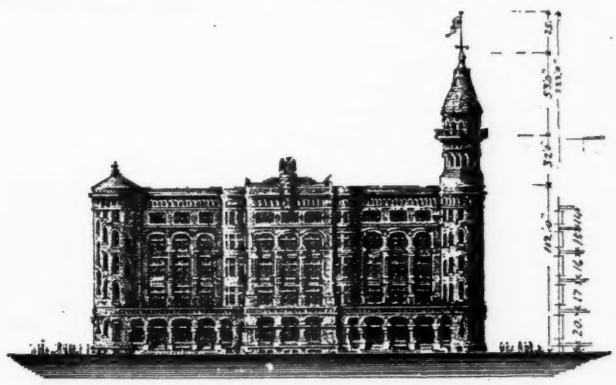
The marshal needs a general office, a private office, with a room to hold prisoners for call. There should be two rooms for witnesses, one for the grand jury, one large one for jurors. There should be two or three jury retiring rooms, one of which should be supplied with bunks to sleep in, and all to have the necessary closets, lavatories, etc.; one room for stationery, two for passed records, etc., one for the crier, a few unassigned rooms, and a suite for the janitor to live in.

The style of the building is so broad a field, that we can hardly touch upon the outer edges within the limits of this paper. The safest thing to say probably would be *de gustibus non est disputandum* yet disregarding all ideas of safety, I feel reckless enough to offer a few suggestions regarding the underlying fundamental principles that seem to have been partially or totally ignored thus far.

The elevations of a building when successful are really the crowning glory of it. As stated before, it is here, where art should crystallize to some extent the character of its projectors, but especially that of the purposes for which the building exists, i. e., government work. It is here that utility and phantasy, wedded in purity, should bring forth a "thing of beauty," which is "a joy forever." I also stated before the government, that building is its "place of business, its counting house, its workshop," not its place of amusement or parade, nor its palace.

The first question that arises is, what is our government? Whom composed of? etc.

Our government is a practical, matter-of-fact, business kind of an institution; we do not recognize the value of the antiquity in families, nor respect we the length of descent. We have no noble lords nor dukes deriving their exalted rank from some bold warrior of old, or some daring buccaneer or highwayman. We are a young people without any lengthy pedigree; our genealogical tree would hardly make a decent fence post yet. Our people are our government. Our leading men who are our nobles, are such by their individual force of character, men who have carved out their own fortunes. These are the men who run our government, these are our government, and let me observe here *en passant*, no man in our day or country becomes a leader of his class without great personal force of character.



Scale 1"=64'0" Front Elevation, U.S. P.O., Custom House, Internal Rev., Pension & Signal Service Bureau U.S. Courts &c.

All these considerations would indicate that our building should be modern in its spirit and feeling; there should be nothing suggesting the antique, for whatever we may be, we are not antiquated in any sense whatever.

Our government is powerful and dignified, slow, but sure; hence, in a general way, the leonine character should be felt in our design. There should be nothing thin, trifling or playful about it; it should be simple, massive and dignified; if possible, it should possess the quality of dwarfing everything that approaches it, as does the Arc de Triumph of Paris.

Now to recapitulate: Our building should be modern, not antique, though it should never look the results that the experience of the ages have taught us. It should be massive, powerful, leonine. It should show the most careful refinement of the simplest as well as the most ornate forms. The skill and perfection of its workmanship should challenge attention everywhere, as well as the care and conscientiousness of its execution.

I will here once again reiterate it, for I have "nailed it to the mast." "Let us try and melt together the quiet serenity of the Greek with the heaven-aspiring tendency of the Gothic. Let our work be as agreeable in its proportions and as harmonious as the Greek, as vigorous as the English, as graceful as the French, as refined as the Florentine, and as systematic as the German.

The Dining Room—Its Adornment and Decorations.*

BY GEORGE A. FREDERICK, F. A. I. A.

OF all the rooms that go to make up a house, be the same large or small, elaborate or simple, none exceeds in importance that chosen as the theme for this paper. It comprehends the fascination of early youth, the solicitude of years mature, the shrine of domestic enjoyment, and forms the very altar of social intercourse and hospitality.

Mindful of the caution regarding lengthy papers of the committee in charge of the preparations for this convention, I have epitomized this skeleton from a more voluminous essay upon the subject chosen, and shall herein confine myself to the more salient points.

Premising my remarks with the explanation that I propose in this essay to treat, not of banquet halls, or specially constructed rooms designed to accommodate large numbers, but of the ordinary, every-day family dining room, I shall forthwith proceed to the consideration of the subject, under a few of its most important heads.

The first thing of moment to realize in the selection or construction of the dining room is the purpose it is destined to fill, that the dining table must form and be the dominant center, and that all else in the room must be subservient to it. The center being thus established, upon what must the designer, be he who he may, depend for the effect he proposes to produce? The essentials for this are light and color; these and their accessories I will treat in the order given, and as briefly as possible.

The most important is the light. Of this there are two kinds, natural and artificial; the former we must take, either as we find or as we can control it; the latter is always at our disposal at pleasure.

Regarding the daylight, the exposure of the dining room should, when possible, be on the side avoiding the direct sunlight, especially during the months of summer, and, if feasible, should come from only one direction, that is, from windows placed only on one side of the room; and if it can be done, from a single source or opening, made sufficiently large and proportionate to the room, either as a single, double, or even triple window, to suit the circumstances. The preferences for this light should be given to the narrow side of the room. If light from two sides cannot be avoided, let the openings be placed opposite to each other (on the narrow sides) in preference to two successive sides, but never permit the light to come from more than two sides. It is needless to add that the provision for light should be abundant.

Artificial light, as before remarked, is under our direct control. It may come from a chandelier suspended from the ceiling, or a candelabrum placed upon the table. Be the illuminating power gas, candles or oil, is of no importance, so it be amply sufficient. No other light should be permitted unless actually required for the side table, by reason of its being too far removed, and then only sufficient for its purposes. The former, as

*Paper read before the Twenty-first Annual Convention of the American Institute of Architects at Chicago, October 20, 1887.

principal light, must be placed either over or on the center of the table, sufficiently elevated not to hinder the range of vision, nor yet so high as to cast unpleasant shadows on the faces of the guests. For the side table, the fixtures, if any, should be as simple and unobtrusive as possible.

If thus compelled to banish the light from the sides, and to concentrate it in the center, it follows naturally that it is not desirable for the walls and their decorations to come into undue prominence; they are nothing in themselves, and exist only to form a background for the picture we desire to produce.

If this be true, then the color chosen for the walls should not be violent, or even a light tone of color, as the center would then fail to relieve itself from such a background; neither should the color chosen be so dark, or of such character as to produce a gloomy effect. It is not my purpose to suggest any specific color or tone; the object desired can be gained in various ways, and must be left to the fancy of the designer or the taste of his employer. I will only remark here that warm tints are preferable to cold. Sometimes it may occur that some objects which cannot be changed are already on hand for the furnishing of the room, such as rugs, carpets, curtains or special pieces of furniture, in harmony with which the color of the walls must be made to conform.

As a general rule, blue should be avoided; warm, reddish tints, of a somber but rich and tolerably dark tone, can safely be recommended, they form a happy medium between light and dark, will not lose their identity in the deepest shadows, and cast warm reflections; neither will red reflect the light, but, on the contrary, by its absorbing tendency, give that repose to the walls which is so very desirable; it also forms an excellent background for pictures, silver or other metals, or glassware.

For the joinery of the dining room, hardwood, naturally finished, is always to be preferred, and used wherever possible; the natural colors of the wood, treated as above suggested, will generally harmonize well with the walls. A dark walnut should be avoided, it is too heavy, and in shadows loses all color. Oak must always remain a favorite for the dining room.

All dining rooms should be wainscoted; simple panel work will suffice, but it should always be panel work. A suitable finish for this room is to construct, also, the ceiling of wood, either with beams properly proportioned, or paneled and molded in pleasing form, but not too heavy. The wainscot need not cover the entire walls of the room, it is better to leave a fair proportion of the wall space either for pictures or plain wall surface. Where the ceilings are lofty, a good finish is secured by making the wainscot fair in height with the doors. If wainscot cannot be afforded, a simple molded wainscot cap, or chair-rail, as often called, will do as an economic substitute, the space between it and the baseboards being finished in a darker shade than above, and can be ornamented with some pleasing diaper in low relief plastic.

The mantel in the dining room (assuming that no dining room is complete without a fireplace) should always be of hardwood, capacious, large to the full proportion the room will admit, and constitute a feature in its design and finish. An open fireplace of good dimensions, and a generous wood fire in season, are to be recommended. Additional provision for properly heating the room will be required in many localities.

The reasons which dictate a quiet background also suggest the procedure, if more than one tint is required. This gives at once two subjects for consideration: color and the form of decoration. Harmony is demanded, but as this may spring from varying elements the question is whether all are equally good. We may accept three principles: harmony of shades, of contrast, of combination. The first depends on one color, but two or more shades; the second upon two colors, the combination of complimentaries; the third upon more than two colors, and may embrace the entire scale. While harmony may be secured by any of these means, the effect, as regards force or repose, is far from being the same; as the last quality is the one desired, it follows that the above methods cannot all be equally good. Harmony of contrast is best where strong effects are sought, which is not our case. The combination of several colors is the less proper the closer they approach the action of strong contrasts. Should several colors be chosen for this purpose, they must blend softly without marked predomination, all must combine in producing the tone of unity.

Neither of the above principles are suitable when additional decorations for the walls, such as pictures, placques, vases, or other ornaments are intended to be displayed upon their surface. Pictures, as is well known, require not only a quiet wall, but almost one of a specific color; and for this reason I would suggest, if not content with a wall of a single color, the employment of the harmony of shades in such form that the tints employed should vary but little, and as far as possible blend into a single tone, so that objects placed against the same may remain distinct. Of equal importance with the choice of color, if our object be repose, is the design of the ornament to be placed upon the same; through the character of its design, an uneasy or violent effect of color cannot only be intensified, but even in itself, on graduated tints, it can produce unrest in the entire space. The design employed should consist of strong, direct, and regular forms; we will always find that small leaved, realistic treated motifs, even when they consist of but shade on shade, call forth an uneasy glitter. While more or less this may not be the case with large leaved models, they, apart from realistic objections, give to their constituent color too large a field or body, producing an effect out of proportion to the place. Should such walls be intended to accommodate pictures, ornaments, or polished utensils, the result will be confusion. A strong and decided pattern, recurring at regular intervals, is an indispensable condition for the walls of the dining room if this form of decoration is decided upon.

While not intending to go further into this subject, I cannot leave it without a few words regarding picture ornamentation, that is, such as are sometimes drawn on, and form a fixed part of the decoration. It might appear as if the theory of a quiet background, and opposition to anything claiming special attention, would entirely exclude such. Instead of absolutely prohibiting, I will grant a partial admittance, but not a supreme assertion: they may form a minor part, submitting to the law the space dictates, and brought into full accord with the place. If employed, they should be kept in a certain sense ornamental in character, so as to be readily recognized as a decoration, and never used to deceive or create illusions.

Two things must be observed: the choice of subjects, and the adaptability of the space. In the connection of subjects none can be deemed admissible which requires dramatic vigor or force; and above all things, the subject chosen must be in harmony with the purposes of the room. Among the most favorable, I would suggest the cycle of the months, with their inexhaustible motives, their natural sequence, the seasons, the entire field of nature, agriculture, the forest and chase, the sea and its fishes. All the pleasures and ideas that cluster around and form the joys of domestic life. Whatever the form selected, allegorical or domestic, it will remain the duty of the artist to make his representations cheerful and pleasing; cheerful as regards the subject, the expression and color, pleasing in its composition and presentation. From these walls sorrow and grief must be banished. If the host requires mourning faces and cheerful dispositions to grace his table, how much more his duty to banish all that could awaken feelings contrary.

The simplest examples of decoration are those found at Pompeii, on the framed walls of which, if I may use this term, with its single toned field, is contained a statuette, arabesque, bird, or small idyllic landscape. This style has considerable charm, does not destroy the background, but can only be employed where the wall is not broken with furniture, pictures, or other affixed ornaments. Where the latter are purposed, the painting had better be confined to a frieze girting the walls, and separated from the space beneath by an architrave of architectural form, either in hardwood or painted.

If the building be executed in any of the specific architectural styles, it follows that not only the dining room in its decorations, but also the walls and their paintings must be kept in proper harmony. It is also clear that designs or pictures employed in the ceiling must in their disposition and framing follow the same rules as dictated for the walls.

Entirely different is the case where hanging pictures are to be employed. Strictly speaking, in destroying harmony, they are unsuited to the dining room. Modern painting has chosen easel pictures for its pursuit, and demands the place in the house for which they have been designed; it follows that whoever, whether for decoration or his own enjoyment, has secured good pictures is satisfied, and little recks whether the object or subject is in opposition to the place, he hangs them up where he finds suitable space, sees them oftenest, and enjoys them most. They have become furniture, not a fixture tied to the room or its walls, and consequently free from its arbitrary requirements. Let us then accept and tolerate them with pleasure, merely suggesting, for their and our enjoyment's sake, that they be placed in the best position for observation, and not against vari-colored or otherwise unfit backgrounds. For this latter purpose, the warm, brownish reds already commended are excellent. Tea greens are also well suited.

The remarks regarding paintings are equally applicable to engravings, on condition they are good, otherwise not. A certain class of pictures, I think, are specially proper to the dining room, and whenever such are in existence they should receive proper consideration in the design and preparation of the room. I speak of family portraits, the pictures of our ancestors, not miniature, but life-sized heads, busts, or even full figures. This is the place where the family regularly meet, where it greets and welcomes its relatives as guests. What better spot then than this to make our venerated ancestors the silent witnesses of the enjoyment and prosperity of their successors; they are ours, a part of us, and of the place.

The dining room is also the proper sphere for the display of fine china, glass or metal ware intended for table use, be such plates, cups or bowls cut or decorated glass, jugs, flagons or cans. All belong to the place, and form an appropriate decoration to wall and mantel, table and sideboard. If it be intended to use objects like the above for wall decorations, then, such walls as previously suggested must be kept quiet in color, simple in design — one tone is best — thus will the metal and glassware, with its sheen or luster, add its charm to the place. That proper taste and care in the arrangement and grouping of the articles is required, it is needless to mention. The general suggestions made for the walls are equally appropriate, considering at all times their relative positions for the floor and the ceiling. The liberty of the walls cannot be extended to the floor, and, be its finish what it may, mosaic, tile, carpet or rug, the subjects embellishing the same should comprise neither animals, landscapes, domestic scenes, or historical efforts; all figures are out of place under foot. From my general remarks, it follows, that neither the floor nor ceiling should be permitted, in its design or coloring, to intrude itself sufficiently to fix the eye. The walls are the primary object of thought, and with these the balance must be brought into perfect harmony.

Regarding the furniture, a consideration which would naturally follow what I have said, I have but little time to discuss. From what has been expressed you will accept, without contradiction (as it is generally followed in practice), that the furniture for the dining room should not only be simpler, but also more massive than such as is used for the parlor or more pretentious rooms. Carving, excess of ornament and gilding are totally out of place; better to consult and secure quiet dignity, convenience and comfort, respecting its form and color, the choice of woods and its upholstery — these are all of the same importance, and should naturally be in unison with the balance of the room. Concerning the greater comparative simplicity required for the dining room, this, I think, is pretty generally recognized at the present time; but this very effort sometimes carries us too far, and, in consequence, the result too often flavors of a stenciled pattern. Comfort and ease must be prime factors in this room, where sociality and friendship are to reign and enjoy their triumphs. Let us then have more color and more furniture, so both be of the right type.

What further may be required, in addition to what I have said, and for much of which I am indebted to Jacob Falk, an able writer on this and kindred subjects, to make the dining room a success, is the table and its toothsome garniture; this I must leave to the genius and ability of the hospitable host and hostess, and to the efficacy of their cook, who, in all cases I fervently and devoutly hope may be a *good* one.

Architecture at the Present Time as Compared with that of Fifty Years Ago.*

BY W. W. BOYINGTON.

FIFTY years ago is an earlier period than my experience as an architect extends; it was, however, in the early years of my studies in architecture. In order to demonstrate fully the progress of architecture during the last half century, would it not be well to compare its progress with some of the other arts and sciences, for instance, steam and electricity, as they are closely allied to architecture in the complete construction of buildings? Steam was better understood fifty years ago in this country than architecture or electricity. Architecture was then understood and practiced as a separate profession by very few persons. I think it is safe to say that there are more architects in practice today in the city of Chicago than there were then in the whole United States. I think it is also safe to say that with the exception of the science of electricity, architecture has made greater strides than any other of the arts and sciences.

I claim that architecture combines both art and science to a greater degree than any other profession. Today, we can vie with any country in the world in style and permanency of construction. Fifty years ago this country knew no style in architecture, except the Classic and the Gothic, and but very few pure examples of either of those styles were executed in this country. The majority of buildings at that period were planned and built by master builders, who usually made their plans on the face of the trestle-board, and shaded them with white, red and blue chalk to designate wood, brick and stone. Details were made, full size, in the same way. My father was a master builder, and used to make his own plans, largely in the way mentioned. Architectural works in that early period were but few. Foreign works at that day were very expensive. I recollect the works of Benjamin Hill, La Fevre, and a few other authors, not to exceed half-a-dozen, altogether. At the present time we have a very large number of architectural publications, and upward of three thousand practicing architects. I trust a majority of them are doing a legitimate commission business, and are not mere tools of contractors.

Fifty years ago, and even less, architects were largely supported by contractors. Now, and for years passed, the owners have found it for their interest to deal directly with architects. Still, there are many impecunious persons who think that it is money wasted to employ an architect, so long as they can get the services of one through their contractor, when, by so doing, they do, as a usual thing, indirectly pay three prices for their plans. I think I am correct in saying that Philadelphia is the largest city in this country which can boast that it has most buildings built in the last fifty years, in proportion to its inhabitants, without the employment of architects. They used to build miles of street fronts, with builders to duplicate a certain mold, with but slight variations to suit localities or notions of proprietors. That system, I am glad to say, is largely done away with, even in Philadelphia, and architects' services are more fully appreciated. Still, in Philadelphia, there are today a less number of architects per capita than in any other large city.

When I came to Chicago, thirty-four years ago, I found the architects then in practice were recent master builders or contractors. Chicago and the West at that time could hardly be said to require the services of architects, separately as such. At that time the structures were but simple buildings, but the builders soon found that it would be better for them to have plans made, rather than to spend their time in making plans, so they clubbed together and induced one of them, the most apt in drawing plans, to give up contracting and to devote his whole time to architecture, and guaranteed him a compensation of $2 per day, which should be paid to him if he did not get business enough to aggregate that amount. I have been told by a person, who was acquainted with the early workings of the first architect of this city, that he had an order for a set of plans for a dwelling, which he made and charged $5 for them, and was much elated over the circumstance.

From this small beginning others started, and on my arrival I was introduced by friends, or had letters of introduction to citizens as a young architect from Massachusetts. This simply shows that as a profession it was not understood. It is not so now. No profession is better or more favorably known.

Having mentioned the small compensation which architects were obtaining for plans, and that it came largely from contractors, I might state that when I commenced business in Chicago I immediately instituted the custom of charging a percentage on the cost of buildings as the only proper course to pursue, and always collected it from the owners. This departure was rather up-hill work, but I have plenty of witnesses now to show that it was a success. And from that small beginning we can, today, boast of as fine and as capable a corps of architects as any city of the union, and the architect who first commenced practice in this city is still living. Chicago has been a sort of radiating point.

My sphere of practice has extended from the Gulf of Mexico on the south, to Manitoba on the north, and from the Atlantic to the Pacific, together with the intermediate cities on the lines from east to west and from north to south. How is it with other arts, sciences and professions? Have they kept equal pace? Railroads were but little known fifty years ago; the same with electricity. Steam power was well developed, but the mechanism was very crude as compared with the present. Electricity can hardly be said to have developed into any practical use half a century ago. Consequently, I think we must give way to the scientific development of electricity. I well remember some few simple electrical experiments made by stringing wires around a town hall, and, with a crude instrument and battery, a circuit was made around the hall and a few interesting experimental freaks were produced.

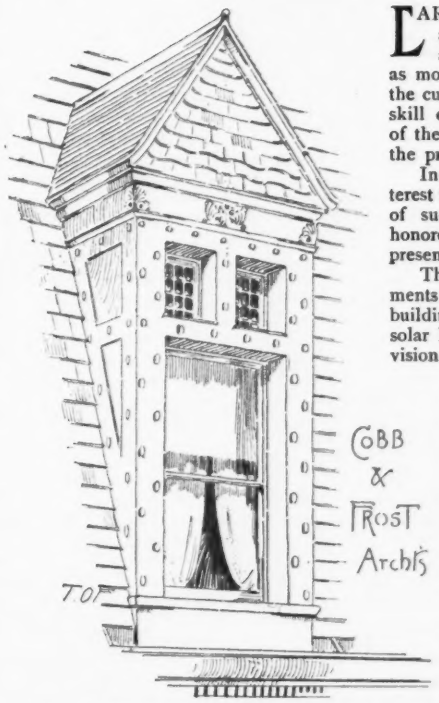
From this small beginning the world has been brought together within speaking communication, and a power produced, yet in its infancy, which is destined to be improved to the wonder and astonishment of the world. Hence, we must assign to it the place of the leading science of the past fifty years.

While we accord this we must not forget the very crude construction of railroads. First, the wood stringer with iron strap rails, more familiarly known as the "snake head" rail. On these rails the engines were constructed to run without tenders or covers of any kind to protect the engineers or firemen. They used to stand on the open platform, exposed to the severity of the weather and storms. It was in the year 1840, I think, that I was called upon by the master mechanic and general superintendent of the Boston and Albany railroad, to see if I could not devise some kind of protection, at least partially to cover the engineer and firemen, and have it sufficiently open not to obstruct their view. I examined an engine and reported that I could construct a cover. I was at once employed to make the necessary drawings and superintend the construction of the first cab over an engine in this or in any other country. The result was a perfect success, upon which there has not been any material improvement, as it was almost identical with the cab now in use. I need hardly inform you that its use was immediately adopted throughout this country. Had I had forethought enough to have secured a patent for the device, I probably would not have been called upon to prepare this paper.

I trust you will forgive me for diverging so far from the subject given me. The mention of these somewhat kindred subjects has been prompted by the incidents in my early life that were fastened so strongly in my mind in connection with my studies and practice in architecture.

The Requirements of a Large Library Building.*

BY J. L. SMITHMEYER, F.A.I.A.



LARGE library buildings are not the things of a day. They stand out as monuments of the taste, the culture, the architectural skill of the age—evidence of the advances of art and the progress of civilization.

In recognition of the interest that is felt in a subject of such importance, I am honored by your request to present my views.

The paramount requirements of a large library building are: Abundance of solar light, a generous provision of artificial light at night, plenty of pure air of a suitable temperature, well-designed protection against the ravages of fire, and against the deleterious influences of dampness, proper ventilation, convenient interior arrangement, durability of building materials, and stability of construction.

Other considerations play a most important part, namely:

1. The proper selection of a site, which should be high and dry, for next to a powder magazine, a book magazine requires the dryest soil and surroundings.

* Papers read before the Twenty-first Annual Convention of the American Institute of Architects, at Chicago, October 20, 1887.

2. There should be such distance between the library building and the nearest high structure as to render possible every necessary use of the direct rays of the sun.

3. The methods of ingress and egress should be limited in number, but very liberal in proportion.

4. The supply of water should be copious, well distributed through the building, and easy of access.

5. Ample provision for the expansion of the book-holding capacity of the building, in order that the demands for the enlargement of the building, owing to the growth of the library, may be postponed to the furthest possible time.

6. Proper provision of the best sanitary arrangements.

7. Easy approaches.

The evolving of a suitable design and style of architecture from these complex requirements — not something odd, bizarre, fantastic; but a style wearing the livery of good taste and exhibiting, even to unskilled eyes, its purpose — is not the most unimportant feature of the architect's labor.

It should be remembered that a design, however replete with artistic merit, may be utterly worthless where the elements of utility and stability are wanting; and per contra, the absence of art in the design for a monumental structure would call for condemnation. The useful and the artistic must combine to produce a harmonious whole.

It must be obvious from what has gone before, that the construction of a large library building, one abreast of the times, in keeping with every modern advance, and suited to the temper and spirit of our civilization, is a task of great moment and consideration.

Foreign models do not meet modern requirements, while our own country is too young to have made much progress in library architecture. The creative faculty must, therefore, be called upon in a more than ordinary degree.

In this connection the work of the architect is greatly increased by a want of unanimity among the librarians of both hemispheres.

The largest as well as the smallest library buildings of the Old World, public, private or special, and all the library buildings, of whatevery character, of the New World are built in accordance with certain inflexible conditions, such as climate, locality, nature of soil, surroundings, capacity, nature of building materials, diverse notions of building committees or owners, cost of structure, etc.

This ought to indicate conclusively, that to accept any one plan, whether tested by trial and approved by experience, or still on probation, as an infallible model for imitation, under all circumstances would be a grave error; for there will hardly be found two library buildings making similar demands—each and every building having been erected and fitted up agreeably to certain peculiar, and ofttimes, heterogeneous conditions.

The scarcity of publications on library architecture is explained by the fact that with a few exceptions, "remodeling," refitting, enlarging and not "designing" or "evolving" was, and still is, the prevailing rule in regard to the larger public library buildings of the Old World.

We find, for instance, in the "Memoirs of Libraries" (Edwards), the mention of quite a number of projected library buildings, but of few that attained execution. The truth is, that most of the large library buildings of Europe sprang into existence, especially the older ones, not through any premeditated or concerted action, nor as a sequel to the thoughtful deliberations of state and county authorities as in this country, but under various and sometimes adverse circumstances, and in periods of time, differing widely each from the other, and altogether from this day and age of ours.

The largest library buildings of Europe for the most part, owed their origin to the munificence of princes or ecclesiastical dignitaries, who made donations of palaces and other large structures to subserve the interests of learning. Not having been originally intended for library purposes these buildings had to be adjusted to a new use, and from time to time, enlarged to meet the new order of things. These structures, as a consequence, cannot be expected to bear much resemblance to each other, either in point of interior or arrangement or external design — and yet, for that very reason much good can be arrived at by the study of the various novel devices and characteristics of these individual library structures and their application to our wants. In spite of their apparent incongruities, they can be rapidly classified into two general types.

The characteristic feature of the first type is the compartment, which performs a double duty. It is a receptacle for the books, and serves also as a reading room; while that of the second type involves the employment of a room separate from the compartment, which is devoted exclusively to reading purposes. The largest example of the first type is the library of St. Genevieve, in Paris; and of the second type, the National Library of Paris (the largest in the world) and the British Museum Library in London.

A brief consideration and comparison of the two types will show which possesses the greater merit, and consequently the strongest claims for emulation in a large library building.

Small libraries belong of necessity to the first type, namely: those of the clergy, lawyers, doctors, architects, or other professional or scientific men. These require their books at their elbow, being their implements of labor. Generally speaking, also municipal corporations belong to this type, and even libraries of the younger states. But there is a limit beyond which this becomes faulty and impracticable.

The hovel of the peasant and the palace of the prince are houses both, and both are well suited to their respective purposes and requirements. It is absurd to presume that the one, with every odor of poverty about him, would find comfort in the frescoed walls and tinseled trappings of the other; or per contra, that wealth could content itself with the squalor and dismal outlines of the peasant's unpretentious hovel.

But alter the condition of the peasant, make wealth his portion, and his habits will change apace. The hovel will be a thing of the past, save in memory, and in a new and fitting home, suited to his improved tastes and enlarged ideas, he will soon find every enjoyment that money can buy. In his former state all comforts were wanting. One room sufficed, or had to suffice, for every need. It served as cooking place, eating place, reading place, sleeping place. If friends he had, this was his only reception room.

Not so with him, indeed, born to the purple, whose means secured for himself and friends every attractive surrounding, the drawing-room, the library, the art gallery, all the appointments of luxury and substantial comfort. To endeavor to force the habits of the one upon the other would obviously be ridiculous, and fail to produce satisfactory results.

Libraries grow as do nations and people. The laws of 1776 cannot be accommodated to our day. The garb of the boy cannot be fitted to the matured man.

Library structures, as a rule, should be built upon the progressive plan. But aside from our leaning toward separate reading rooms for libraries above a certain size and cost, there are serious reasons which turn the scales in favor of the second type.

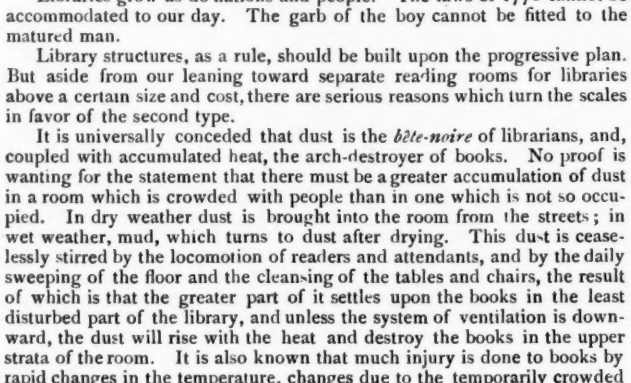
It is universally conceded that dust is the *bête-noire* of librarians, and, coupled with accumulated heat, the arch-destroyer of books. No proof is wanting for the statement that there must be a greater accumulation of dust in a room which is crowded with people than in one which is not so occupied. In dry weather dust is brought into the room from the streets; in wet weather, mud, which turns to dust after drying. This dust is ceaselessly stirred by the locomotion of readers and attendants, and by the daily sweeping of the floor and the cleansing of the tables and chairs, the result of which is that the greater part of it settles upon the books in the least disturbed part of the library, and unless the system of ventilation is downward, the dust will rise with the heat and destroy the books in the upper strata of the room. It is also known that much injury is done to books by rapid changes in the temperature, changes due to the temporarily crowded occupancy of the room in which the books are kept. Excess of humidity in the air is likewise detrimental to the books and bindings, which, in most cases, is produced by wet clothing, footgear, and the umbrellas which are carried into the rooms by visitors on rainy days. The odor of books and bindings at best is unpleasant and *not* healthful. Certainly they can be rendered more objectionable by these aggravating causes.

The second type is free from all these objections, and claims as its champions the majority of the larger and more modern libraries. It is a significant fact that the first type of libraries is being rapidly changed into the second type in the larger libraries of the Old World, because of the necessity to afford the constantly increasing number of readers better facilities for the use of the libraries. As long as these libraries were accessible to only a few of the privileged classes, who may have had a taste for reading or studying, there existed no separate reading rooms, nor were rooms heated, or lighted at night, but since the advent of constitutional government these libraries have been thrown open to the general public, and reading rooms have become an absolute necessity.

Some time ago there was a controversy among librarians. The subject was whether the "Alcove" or "Stack" system of placing the books was the better, and several of the leading librarians of the country took part.

Whether the individual racks upon which the books rest should be placed singly and flatly against the wall (which constitutes the rack system) or doubly, and at right angles to the wall and project a small space into the room, say 5 feet, and placed, say 8 feet apart (which constitutes the alcove system), or whether the racks should be placed close together, say 2½ feet apart, dividing the former alcoves into halves (which constitutes the semi-alcove system, between the alcove and the stack system), or finally, whether these racks are placed, say 2½ feet apart and extend across the room in parallel rows (which constitutes the stack system), is a matter of no concern to the architect, because whichever system for placing books is adopted must be acceptable to him, and he only wants time to make his arrangements to meet the preference demanded.

By way of illustrating, let us suggest a problem: A small library structure is to be put up to accommodate from 8,000 to 10,000 books, the interior arrangement to be so pliable that it will ultimately hold 26,000 books without enlarging or changing the building. We will take a building one-story high for our purpose, 22 by 40 feet in the clear, and 10 or 12 feet high, have a skylight and (if desired) side lights above the bookcases, which are only 7 feet high. Ten books per cubic foot will be a good average for such a library with an interior arrangement shown on Fig. 1.



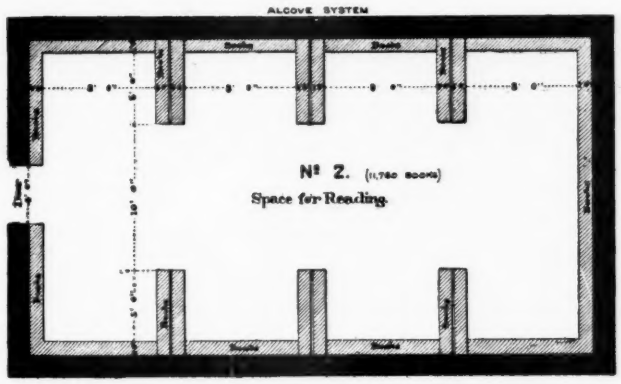
Deducting 4 feet for the door at one end of the room, as shown, we will have:

18–22–40–40..... = 120 feet by 7 feet, height of rack.
120 by 7 feet..... = 840 feet.
840 feet by 10 books.... = 8,400 books.

Eight thousand four hundred books will be accommodated in single racks, put against the wall. The center of this room may be used for reading purposes. (First type.)

Should a greater capacity for books become necessary, 12 racks, say,

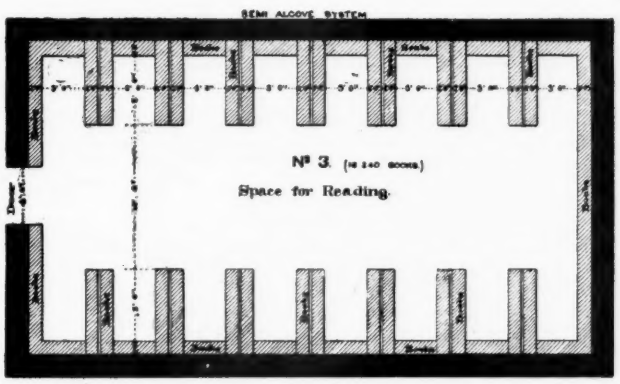
each 5 feet long and 7 feet high, might be placed in the room at right angles to the side walls, say, 8 feet apart (forming alcove). See Fig. 2.



12 single racks by 5 feet long	=	60 feet.
60 feet by 7 feet high	=	420 feet.
420 feet by 10 books	=	4,200 books.
Deduct 12 square feet of wall space covered by racks 7 feet high at 10 books	=	840 books.
		3,360 books.

The center of this room may still be used as a reading room. (First type.)

The next extension will, if needed, consist in the introduction of 16 more racks placed between the alcoves and dividing them into halves. See Fig. 3.

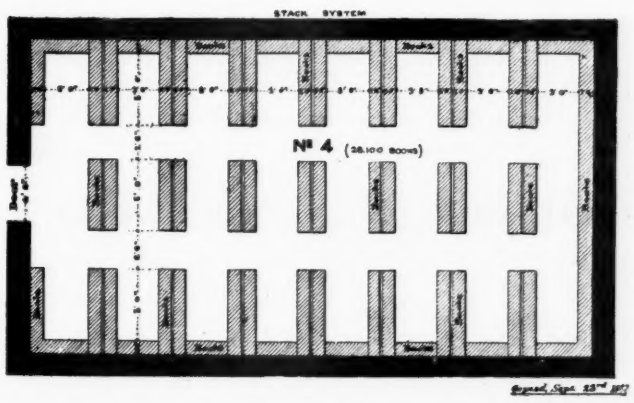


By this addition is gained:

16 racks by 5 feet long	=	80 feet.
80 by 7 feet	=	560 feet.
560 feet by 10 books	=	5,600 books.
Deduct 16 square feet of wall space covered by rack 7 feet high at 10 books	=	1,120 books.
		4,480 books.

The center of this room may still be used as a reading room. (First type.)

The last extension possible will be in the direction of abandoning the compartment type and devoting the space now used for reading purposes to book racks. By this change will be gained 14 more racks or 9,800 books. These racks are placed in parallel lines the width of the room, say 3 feet apart, with passages between them, as shown on Fig. 4.



14 racks by 10 feet long	=	140 feet.
140 feet by 7 feet	=	980 feet.
980 feet by 10 books	=	9,800 books.

This will make a total of:

Fig. I	8,400
" II	3,360
" III	4,480
" IV	9,800
Total	26,040

It will be noticed that in the ratio as the space became more occupied by book racks the library gradually changed its classification from the first to the second types, and with the introduction of the full stack system all possibility of using it for reading purposes has vanished.

This process might be called the "progressive plan," to which is similar, though on a larger scale, the one contemplated for the congressional library. In that library a capacity will now be provided for 2,500,000 books, which, as circumstances may require, can be extended to accommodate 8,750,000 volumes without enlarging the structure.

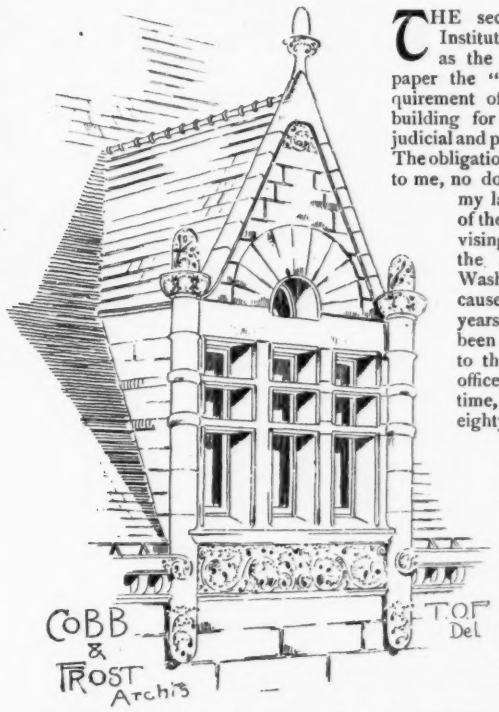
But with all the requirements paramount to all others are: *Plenty of light and air, security against fire and dampness, convenient interior arrangement, durability of material and stability of construction.*

The adoption of a style for the building, the part of the work which is generally regarded as a matter of pure art, namely, symmetry, the apparent form—this is quite a secondary consideration. Paramount requirements of an architectural problem must under no circumstances be subordinated to the adoption of a style; at the same time it must be borne in mind that it is the style, the apparent form, which is generally conceded to manifest the designer's taste, and that the encomium bestowed upon the architect's efforts, either by a contemporary public or by posterity, seems after all to be the crowning test of an edifice; therefore, the useful and the artistic must be agreeably blended.

In the time, which has necessarily been limited, it was not possible to give proper treatment to a subject of such interest. I have only been able to present the framework. Your indulgence must supply the rest. Let mine be the hope that in the endeavor to be brief I have not become obscure.

The National Building Question.*

BY MIFLIN E. BELL, F. A. I. A.



THE secretary of our Institute has selected as the subject of this paper the "Paramount requirement of a national building for custom house, judicial and postal purposes." The obligation was suggested to me, no doubt, because of my late incumbency of the office of supervising architect of the government at Washington, and because nearly four years of my life have been devoted wholly to the work of that office, which, at this time, has upward of eighty such buildings under its management and in course of construction. By referring to my subject in detail, I find that I am requested to treat of "Paramount requirements as regards site, construction, disposition of space, arrangements of water supply, day and night illumination, ingress and exit, heating, ventilation, hygiene generally, and provision against conflagration, as well as any other points involved in this special theme which my studies and experience have led me to class as *important*."

I confess at the start that I hesitated long and seriously before accepting such an obligation, because I think when all the subjects mentioned are thoroughly digested, including those that I might class as important, there is very little left to discuss from the practical standpoint of our profession; and when the obligation is coupled with the request, oft repeated, that the paper shall be a short one, the obligation seems all the more difficult.

I have accepted it, however, not that I have hopes of presenting anything novel or entertaining to this convention, so many members of which are twice my own age in the practice of our profession, but with a most sincere desire that the subject of our national architecture shall be taken up at this time, treated of, agitated and talked over until our ideas are crystallized and put into practical shape, so that they can be understood and considered by an intelligent public, and their representatives in congress. The whole theme is so grand, so ennobling, so far-reaching in its results for the glory of our profession, that to be brief is well-nigh impossible.

* Paper read before the Twenty-first Annual Convention of the American Institute of Architects at Chicago, October 20, 1887.

The obligation includes a hasty treatment in detail of each subject suggested, and necessarily involves the consideration of the architectural department of our government at Washington. After the bill for the erection of a national building has become a law, the question of a proper site is the first consideration. The system by which the sites have been generally selected was for the secretary of the treasury to appoint a commission of not less than three nor more than seven gentlemen, residents of the city where the building is to be constructed, with instructions to recommend a suitable site, and, in most cases, the recommendation of these gentlemen has been approved. Theoretically, it is quite natural to suppose that the gentlemen so selected would perform their part with honor to themselves, and to the satisfaction of the department.

The facts do not bear out any such a supposition. The question of what the site was to cost, and its relation to the total amount of expenditure fixed for both site and building, rarely entered into the question with them, excepting perhaps to see that the price to be paid was not exorbitant. Such committees were nearly always swayed by personal interest, local influences, such as a newspaper, a brother member of the church, a warm personal friend, a poor widow, or some other creature that was found to be the governing cause in the case. The sites so selected were frequently of insufficient area, at times largely in excess of what they should be as to cost, not properly located for the government business, nor for the accommodation of the public; examples of which are to be found all over the country. When the site selected was found to be too small, it was after the building had been constructed and the postmaster and other government officers attempted to transact business in their new quarters. To obtain *then* additional ground and enlarge the building was the only alternative, and after accomplished, was always expensive, and seldom satisfactory.

The system now in vogue is to advertise in local newspapers for a site for the new building, thus allowing anyone, who may so desire, to submit his or their proposal. A stated time is fixed when an agent of the department is sent to witness the opening, and to hear what may be classed as public opinion. Each site is then visited and inspected by the agent and its price and eligibility taken into account. Upon the written report of the agent to the supervising architect, and in turn, his recommendation to the secretary of the treasury, action is taken, and the question of site, so far as the treasury department is concerned, is settled.

All papers are then given to the attorney-general, and upon his certificate that the title is valid, the site is paid for. The paramount requirements are properly met by taking into account the area required for the present volume of business, and for future growth of population, and consequent enlargement of the building, which should always be well and carefully provided for. The site selected should be at the angle of a square, and with its main façades to the south and east, for proper light and the accommodation of the public. The area in all cases should be sufficient, so that an undivided space of not less than thirty feet can be maintained upon the two inner façades, as a proper protection against fire from adjacent property, and for a proper circulation of air and the admission of light. In considering the building proper, the question of the material entering into its composition will largely depend upon its geographical location.

It should always be a fireproof building in every sense of the term, and so planned that additions can be added providing increased accommodations when necessary, while the architectural harmony of design is maintained or increased. The interior should be constructed of the most lasting and durable finish, such as polished domestic marble, encaustic tiles, terra-cotta and plate glass. Large openings in walls should occur wherever consistent with permanent and safe construction for a thorough diffusion of light. The floor and roof construction should be of iron or steel, fireproofed, and with fillings of terra-cotta. In the important question of roof construction, the best results have been obtained by the use of porous terra-cotta sheathing, set in lime mortar and bolted to T irons, the whole surface covered with coal tar or pure asphaltum, with roofing prepared paper, rolled on while the tar or asphaltum is still hot. The paper will then adhere perfectly and prevent the passage of moisture, fine drift snow or rain.

After the paper is applied, the valleys, hip-rolls, gutters and flashings are formed in copper, when the whole is slated with $\frac{3}{16}$ thick slate, bolted to place with bolts having countersunk heads, and with nuts and washers. When so constructed it can be safely plastered upon the under side, will be durable, and will be found to assist very materially in the heating and ventilating of the building during the cold season, and in the end will be found to be the most economical. In this respect, however, I do not place myself in competition with those architects who employ the flat roof or no roof at all. To me, any detached building, where the climate is, as it is in every locality of our country, without a roof to be seen, is an architectural innovation. In the distribution of floor space, the basement will be generally occupied for storage purposes, heating, ventilating and lighting apparatus, elevator pumps and machinery. The first floor of the building should be sufficiently elevated, so that the basement can be well lighted without areas, making it available for practical use, and giving a more imposing exterior. It will be entirely taken up by the postoffice department with its main working room, postmaster's public and private office, the assistant postmaster's room, money order and registering department, mailing clerk's retiring room, with stairs, halls and elevators.

The second story will provide accommodations for the Internal Revenue Collector's offices, the United States Marshal's public and private office and quarters for the United States Coast Survey. The third story will be arranged to accommodate the United States District and Circuit Court, with private rooms for the judges, his clerks and library, the United States District Attorney's room, besides lawyers' consulting room, with witnesses' waiting room adjacent, jury room, halls, stairways and elevators. The heating of the building should be, in nearly all cases, a low pressure, indirect, mechanical steam heating and ventilating apparatus.

The boilers and all the radiators should be massed in the basement, and by means of a fan the atmosphere of the entire building should be placed in a plus condition, and the supply of fresh air, and the ventilation regulated as required by the temperature upon the exterior. The supply should be distributed at the ceiling in all cases, while the ventilation is operating at the bottom of rooms and hallways.

The lighting of the building should be by the incandescent electric light, the entire plant to be the property of the government, and under the control of a competent engineer in charge of the heating apparatus and elevator machinery, provision should be made for rainwater supply by the construction of large cisterns outside of the building, into which all conductors should discharge.

The tank in the attic should be provided with pipe and connection hose on the different floors for use in case of fire. For other purposes the city water supply generally proves everything that is desired. What may be considered as the "paramount requirements" of the building in question then can be properly condensed into three prime factors: first, a sufficient sum of money; second, architectural knowledge to properly apply it; and lastly, legislative authority, such as is sometimes obtained by accident, seldom by intention.

With these three factors given, the solution of the problem would be an easy one, and would be understood as well for a national building as for any other. That they are not given factors in the problem is known to you all, and further treatment of my subject brings me at once to the consideration of the present system by which our national buildings have been, and are now being constructed. As to the question of money available to construct a building, it is a fact that as many bills are passed by congress and become laws, authorizing the construction of buildings, restricting and conditioning with great caution, the expenditure, and yet omitting to appropriate one dollar, as are passed where the total amount to be expended is appropriated and made available as it should be.

The great majority of bills that are passed, and by which the treasury department is governed, for public buildings, appropriates only a small percentage of the amount fixed in the bill, as the total limit of cost. It is evident, therefore, that the architectural department of the government cannot be called to account for the notorious delays and consequent additional expense in their construction. Having authorized the erection of a building, why should not the full amount required for its construction be appropriated, so that the work of construction may be carried on with dispatch, and upon sound business principles. That it is not so is a most unaccountable fact upon any other than political grounds. The lower house of congress being democratic and the senate republican, are trying to make a record for economy in appropriations, and while it is possible to pass bills for necessary building, the appropriation committees decline to appropriate the money, and, in my judgment, must assume the responsibility for everything resulting from a policy of inadequate and dribbling appropriations. In considering the second requirement, that of architectural intelligence, that of the supervising architect of the treasury should be without limit.

Under the present system this is certainly a "paramount necessity." He should be so endowed, that at will, should congress vote the erection of forty buildings at one time, as did the Forty-Seventh Congress, his ability will still be sufficient. With eighty new buildings in course of construction, he is expected to make no mistake, and to do all the architectural work with the same facilities that were once required for ten buildings. What may be classed as architectural, is but one portion of his work; he is necessarily an executive officer, and attends personally to a correspondence of upward of three thousand letters per month, besides hearing contested cases of contractors, holding counsel with congressmen, senators and other government officials. His immediate official superior, the Secretary of the Treasury, may require some education in the ethics of architectural details with which he is not familiar, and it is one of the duties of the Supervising Architect to be especially devoted to his case. If, as in my own experience, there should be a Folger, a Gresham, a McCullough, a Manning, and a Fairchild in the space of four years, his duties in this regard are not lessened. Concerning his professional brethren criticism has generally fallen upon him for the architectural taste or style which he employs.

It is generally admitted, that in a national building it is the crowning element in its relation to the public, posterity and history. How important, then, paramount indeed, that it should be consistent with the requirements of our people and their peculiar institutions. There should be, in my humble judgment, no hidebound fetters holding our national architecture to the rigid rules of the classics, but an absolute freedom and emancipation of design in which the governing spirit shall be that of utility, durability, truthfulness and harmony. I abhor a false window as I do any other kind of a lie. The national building, therefore, should in its every feature of design, be of a style consistent with our education and temperament as a people, and monuments in history to our highest art and culture. The time allotted to this paper is so limited that for futher information upon this factor of national buildings, I am compelled to refer you to "The History, Organization and Function of the Office of Supervising Architect" of the government, published by the office in the year 1886, and obtainable there upon application.

As to the third condition, it is paramount that congress, in order to embrace in a bill for the construction of a national building the proper legislation, should have sufficient data and knowledge of each case, upon which to base an opinion. The facts are, that in the past congress has seldom sought such information. If the language of a bill and the limit of cost were as they should be, it was purely accidental, the general intention being to get the building started and correct everything at some future session. The unsatisfactory result of this part of the present system are known to you all. I might go much more into detail by way of illustration, but our country is full of object lessons, and time will not permit. I will close with but a few remarks as to a remedy.

Certainly nothing will be done toward correcting the present system until the architectural profession take the initiative and formulate something better, and the responsibility for its continuance rests solely upon them. Congress will be found willing to enact into law any bill which can be shown to be in the interest of a better architecture and a more eco-

nomical administration. The first step, therefore, is for the American Institute of Architects, together with the Western Association, to formulate and agree upon a measure which meets every phase of the case in detail, and which, when presented to congress, will be the basis upon which every architect and the public at large can intelligently demand its enactment into law.

If we ourselves are incapable of this, complaint and fault-finding with the present system and its work will be useless. The objects to be attained are a higher art in the national building architecture, and a more effectual and economical administration in their construction. The public are much more interested in this matter than are the architects themselves, and ignorance of the subject is our enemy to fight.

Our architectural journals and the public press are the means by which to get the proper information to the people, and when there its effect will at once be felt in congress. Personally I have not hesitated to go on record in my reports to the Secretary of the Treasury as to what, in my opinion, should be done, and which, in general terms, is to create a commission or board of public buildings, composed of the supervising architect, an assistant supervising architect, a heating, ventilating and sanitary engineer, and a master builder, with the Secretary of the Treasury as *ex-officio* member.

We are happily reaching an age of specialties, and it is but reasonable that those who are experts in a special branch of work should be the safest and best guides to success. The combined intelligence of such a board will justly inspire confidence in the public mind, and congress as well, while our profession can safely trust the question of competitive plans to their judgment.

I am as much opposed to a promiscuous competition for a national building as I am to one for a private or any other public building, and what architect, who has obtained by ten or twenty years of laborious study, hard work and responsibility, a just reward in reputation, would care to risk it with those so-called architects who have nothing to lose and everything to gain. There should, therefore, be a standard adopted among architects, which shall determine effectually their claims to the title, upon the cornerstone of which should be inscribed indelibly the words honesty and ability.

Life is too short for further delay. Let the work already performed in this direction be weighed for what it is worth, but let not this convention adjourn until it has gone on record as to what it knows about the paramount requirements of a national building for custom house, judicial and postal purposes.

Twenty-first Annual Convention of the American Institute of Architects.

THE twenty-first annual convention of the American Institute of Architects convened at Chicago, October 19, 20 and 21. The sessions of the convention were held at the newly completed Art Institute in the handsome apartments of the Literary Club, kindly donated by the association for the purpose. The exhibit of drawings, to the inspection of which an evening was given, was made at the Exhibit of Building Materials.

The convention was called to order at eleven o'clock A.M., by First Vice-President Edward H. Kendall, of New York. Secretary A. J. Bloor, of New York, occupied the secretary's chair, these officers retaining these positions to the close of the convention.

The president made an opening address, elegant in diction, clear and practical in its advice and comment, which was received with applause by the sixty architects present. The address was as follows:

THE PRESIDENT'S ADDRESS.

Having known for only two or three weeks, that, owing to serious illness, our esteemed president, Mr. Walter, could not be with us today, I can do little more than call you to order, and formally endeavor to perform the duties of chairman.

I shall ask you, however, to undertake the business of this, our twenty-first annual convention, with that especial dignity of bearing and soberness of purpose, which would seem to be called for upon the attainment of our corporate majority, and will remind you that we are called together, in this great and prosperous city, for the purpose of exchanging our annual greetings, of renewing our allegiance, one to another, of giving evidence that we are competent to do the work required of us, of investigating the current developments in the science and art of our profession, and of increasing our usefulness to ourselves and to our clients in all possible ways.

We shall listen to papers from representative men upon subjects of especial interest, and reports of important committees must be heard and acted upon.

One of the greatest difficulties encountered by your Board of Trustees, now that our field is so much enlarged, is the frequent meagerness of information concerning candidates for membership, and, in order to reduce this difficulty to a minimum, must we not soon devise a better method than the present one of determining whether or not those who wish to join us are qualified by education, by business habits, and by personal characteristics so to influence public opinion that we may command the respect and confidence of the several communities in which we work?

Whether the present method can be made sufficient by a keener sense of responsibility on the part of those who know the applicants for fellowship, or associateship, or whether we should create an office, in the nature of a traveling secretaryship, the duties of which would be to come in personal contact with all our members and would-be members, and by intercourse and correspondence, to make the institute more surely a common ground where the best instincts and interests of our profession should center, is a subject which we ought soon carefully to consider.

We must all feel gratified by the growing interest taken in our institute which is clearly shown by the large number of applications for membership, and of requests for information as to the organization of additional chapters during the past year, and you will all bear me out when I say that we are especially glad to have admitted so many who are also members of the Western Association of Architects.

It is our wish to have the active coöperation of all the best men in the profession, and the being a member of other associations or societies, instead of being a bar against, is in fact the very best reason for joining the institute, as it would then get the benefit of doubly organized work, and the general welfare would be correspondingly advanced.

Then, again, we wish to see and personally know all those who are doing good work in this great country, and the day will soon come when these annual meetings will be eagerly looked forward to, and be largely attended, and when they will be considered not so much from the standpoint of duty as from that of pleasure and privilege; then, also, will the American Institute of Architects accomplish its highest degree of usefulness when it becomes the chief vehicle of professional pleasures as well as of professional duties; and when, to the formal requirements of routine and committee, are generously added the fraternal leaven of impulse and comity.

Mr. Kendall's address was referred to a special committee to report back to the association. Secretary Bloor submitted the report of the Board of Trustees, which was also referred to a special committee, as was that of Treasurer O. P. Hatfield. Professor N. Clifford Ricker, chairman of the Committee on Education, made a lengthy report, in which he outlined much that could be done toward the architectural education of young men, and described in detail the course of study in this respect at the University of Illinois at Champaign. This report was also referred to a special committee.

The following members of the Institute were present during the sessions of the convention:

Albany, N. Y.: Robert W. Gibson.
Baltimore, Md.: George A. Frederick.
Bridgeport, Conn.: Warren R. Briggs.
Buffalo, N. Y.: William S. Wickes.
Champaign, Ill.: Prof. N. Clifford Ricker.
Cedar Rapids, Iowa: Eugene H. Taylor.
Chicago, Ill.: D. H. Burnham, Henry W. Hill, Alfred T. Pashley, S. S. Beman, C. A. Frost, Normand S. Patton, John W. Root, L. D. Cleaveland, H. L. Gay, Louis H. Sullivan, Miflin E. Bell, W. W. Clay, S. V. Shipman, Wm. Holabird, J. J. Flanders, J. L. Silsbee, W. L. B. Jenney, W. A. Otis, Dankmar Adler, John Addison, August Fiedler, Alfred Smith, James R. Willett, P. B. Wight, F. L. Charnley, H. I. Cobb.
Cincinnati, Ohio: James W. McLaughlin, W. R. Brown, William Martin Aiken, George W. Rapp, Charles Crapsey.
Cleveland, Ohio: Levi T. Scofield.
Dayton, Ohio: S. R. Burns.
Elmira, N. Y.: Otis Dockstader.
Hartford, Conn.: Melvin P. Hapgood.
Lafayette, Ind.: James F. Alexander.
Louisville, Ky.: C. A. Curtin, Mason Maury, C. J. Clarke.
Nashville, Tenn.: William C. Smith.
New York: Edward H. Kendall, A. J. Bloor, O. P. Hatfield.
Philadelphia, Pa.: John Ord, W. B. Powell, John J. Deery.
Pittsburgh, Pa.: C. M. Bartberger.
Providence, R. I.: Edward I. Nickerson.
Rochester, N. Y.: James G. Cutler.
Scranton, Pa.: E. L. Walter.
St. Paul, Minn.: C. A. Wallingford.
Utica, N. Y.: Fred H. Gough.
Washington, D. C.: John Moser, Adolph Cluss.

Among the visitors were: C. H. Brodie, London, England; C. H. Meyer, editor *Engineering and Building Record*, New York; R. C. McLean, editor INLAND ARCHITECT, Chicago.

REPORT OF THE COMMITTEE ON PUBLICATIONS.

The Committee on Publications reported there had been of the twentieth annual meeting of the Institute, 750 copies for distribution among the members of the Institute and corresponding members of the society, printed,

which had and would be distributed as soon as the present addresses were obtained. The report was accepted.

REPORT OF CHAPTERS A. I. A.

The secretary of the Baltimore Chapter reported the attendance of the meetings during the past year generally well attended, that there was neither any loss nor gain of membership; that there was a movement on foot by the architects and contractors to secure a building law for the city, with a prospect of securing its passage.

The secretary of the Boston Chapter reported that during the past year the monthly dinners and meetings have been well attended. At various meetings there have been the following events: C. H. Blackall reported on his two years' travel in Europe, and exhibited sketches made by him during that time; Geo. Sewell illustrated Moorish architecture, and a paper on the proper use of colors was read. Students of architecture were invited to attend the meetings of the chapter. A committee was appointed to report on the present condition and course of the Architectural Department of Massachusetts. By-laws had been revised, and a copy of the revised by-laws submitted and made a part of the report. That there were but few changes of membership during the year, one fellow, E. C. Curtis, had died, and one member was received. Five members had been advanced to fellowship, four juniors had been advanced, and three honorary members elected, making twelve in all.

The secretary of the Chicago Chapter reported its membership for 1887 to be twenty-seven, the same as stated in the last report to the annual meeting. There have been several special meetings during the year. At a special meeting held in August a committee was appointed to act in conjunction with a committee from the Illinois State Association of Architects to prepare a programme of reception for the American Institute of Architects.

The secretary of the Cincinnati Chapter reported there was merely nominal meetings of the chapter during the past year, but one meeting was held, and that for the election of officers in order to keep up the organization. It was believed that some way would be found to interest the members of the profession, as there was a disposition to keep up the organization. In regard to the status of architecture it was reported there were several important buildings under contract at the present time. The Chamber of Commerce and City Hall, to cost about $700,000. Accompanying the report was a roster of the officers of the chapter.

The secretary of the Indianapolis Chapter reported satisfaction in respect to the regular meetings, the attendance being a fair average of the membership. Rules and resolutions have been adopted tending to the welfare of the profession and inviting all worthy architects in the state to join. The discovery of natural gas has drawn capital to the state, consequently the members of the chapter have been kept busy to the present time. Among the important buildings referred to were the State Capitol and the City Hall which deserve special attention. These buildings are models of their kind and were designed by J. Bolan & Son. Reference was made to the State Soldiers' and Sailors' Monument, to be built at Indianapolis, at a cost of $275,000, as appropriated by the last legislature.

The secretary of the New York Chapter reported that a committee of the chapter had been appointed to coöperate with the board of examiners of the New York Fire Department for the purpose of having the board unite with the committee in suggesting and preparing a bill to present to the next state legislature to revise the building law. The chairmanship of the joint committee was given to the chapter. A letter by a New York capitalist requesting the chapter to give its influence for the repeal of the law regulating the height of buildings was laid on the table. A series of resolutions on the death of one of the members comprised a part of the report. The membership remains the same as at the last report, one member having died and one having been elected on the same day.

The secretary of the Philadelphia Chapter in his report alleges a marked improvement in that city in the style of architecture in the last two years, and especially in the last year, for which the members of the chapter claim the credit. Many new designs have been originated and a great demand has arisen for architectural skill. The erection of small buildings has been a feature, many thousand of small homes having been erected. The chapter meetings are held regularly.

The secretary of the Rhode Island Chapter reported the monthly meetings held regularly. After supper some subject is named and discussed, and sketches and plans shown.

The secretary of the Washington Chapter reported that on May 28, 1887, a message was sent to each architect residing in Washington city, requesting them to join the organization. On June 9 a list of all the architects was made and a personal request sent to them to join. A committee was appointed to draft a constitution and by-laws, which were reported and discussed at several meetings. The architects on the list meeting, August 11, the chapter was organized, the officers elected, and the secretary was instructed to call the first regular meeting October 9, when the report of the committee was discussed *pro* and *con*, and was finally referred to a special committee to report to the chapter at some future time. The officers elected, August 11, were reëlected.

The reports from chapters were received and referred to a special committee.

REPORT OF THE SECRETARY FOR FOREIGN CORRESPONDENCE.

W. L. B. Jenney, the secretary for foreign correspondence, stated he had a very vague report to make; that during the past twelve months he had had nothing referred to him for his official action—not even some lucky fellow who was about to start off on his European tour had come to him for a good send-off. So he trusted the members would appoint some younger and more energetic man, and perhaps there would be a change. His first year's labor consisted in acknowledging the receipt of a New Year's card; his second in transmitting resolutions of condolence and in introducing an associate to his European contemporaries, and during the past year—nothing, so he was in hopes some more successful secretary of foreign correspondence may succeed him at the close of his third term, the end of this month. Report received and filed.

The secretary announced the next business in order was the appointing of a committee for the election of officers and standing committees for the ensuing year.

There being no objections the chair appointed the following gentlemen: Edward I Nickerson, of Providence, Rhode Island; H. L. Gay, of Chicago; J. C. Smith, of Nashville.

On suggestion, the chair added to this committee, W. R. Briggs, the additional member.

The special committee appointed on the bill to provide improved methods in the architectural service of the federal government in conjunction with a special committee of the Western Association of Architects, reported that the bill had been introduced before congress, but had not been reached in the order of business. The cause of the delay was accounted for by Representative Hewitt of New York, who introduced it before congress, in a letter dated June 28 to the chairman of the committee, in which he stated he had been unable, through press of business, to give it proper attention; that the bill would have no success until it was placed in the charge of someone who would take special interest in it. When one reflects that there are ten thousand bills before congress, one will understand how difficult it is to get consideration of a bill unless some member devotes all his time to it. Mr. Hewitt suggested the reference of the bill to the Committee on Public Grounds, etc. The committee therefore reported in favor of continuing the effort by the Association, and providing for its proper introduction before the next congress.

The Committee on Architects' Protective Associations reported a letter from T. M. Clark, under date of October 4, in which he stated it would be utterly impossible for him to attend the convention or do anything about the inquiring into the personal laws of the different states; that it would take weeks to look the matter up and to arrange the time to get some work done on it. The thing has been out of the question. On motion this letter was accepted as the report of the committee.

The committee to whom was referred the subject of a permanent home for the Institute reported that in their opinion this permanent home should be located in New York City, somewhat centrally yet not in the most expensive district, that it should be a fireproof building, and constructed for office purposes for public use as well as for institute purposes—that it should be built as a building investment; in other words, as a joint stock enterprise with a capital stock of from $300,000 to $500,000, to which the members could subscribe according to their inclination—that such a building would readily rent, one-half of which rental could be held as a reserve fund. The committee would not suggest details. The report was accepted.

The Committee on Building Contracts for use throughout the United States reported that in their conference with the Special Committee of the National Association of Builders of the United States, it was decided to recommend that a committee of three be appointed from this Institute, the Western Association of Architects and the National Association of Builders to prepare such contracts, with power. The report was received and accepted.

The president was empowered to appoint said committee and named Messrs. Miflin E. Bell, Levi T. Scofield and Dankmar Adler.

On motion of the secretary, the chair appointed as the auditing committee, Messrs. D. H. Burnham, W. R. Briggs and Chas. Crapsey.

It being next in order the chair appointed Messrs. J. G. Cutler, J. W. McLaughlin and J. W. Root a special committee to report on the various reports submitted to the convention.

The secretary then read a letter of greeting to the institute from the Alabama State Association of Architects, in which reference was made to the progress made of late years in architecture, and claiming for that state a special progress. Credit was given to the American Institute of Architects for this progress. The letter closed with the following sentence: "We desire to place on record our satisfaction, and again offer you our collective and personal gratification." The letter was ordered accepted and placed on file.

The secretary read a letter from Mr. John Ord, reporting the condition of President Walker, who has been very ill, and stated he had received a telegram from Mr. Ord, in which he stated that he proposed calling on him Sunday, and would report his condition to the convention on Wednesday.

A request was read to the convention from the Northwestern Terra-Cotta Company, extending to the members an invitation to visit their works. The invitation was referred to a committee of Messrs. Jenney and Gay, who subsequently reported favorably, and set the time at the close of the session, and the members had partaken of their lunch.

The secretary reported that, owing to the mis-sending of a portion of the boxes intended for the art exhibit, to the Art Institute, that part of the day's programme would be deferred until the following day.

After suggestions to go on with the routine business of the institute in the evening, it was decided to visit the Inter-State Industrial Exhibition at the Exposition Building instead.

A member: I would like to inquire whether the reported list of fellows and associate members embrace all who have belonged to the institute, or does it only embrace those who are now members and have paid their dues?

The Secretary: There are two lists, one showing the present membership, and the other those who are and who have been members.

Mr. Jenney: I have counted the names and there are about two hundred and seventy fellows and associate members.

A member: Mr. President, I count seventy-seven fellows on the printed list, and I see by the by-laws the number is limited to seventy.

A member: Then the number of fellows designated by the law of the institute has been exceeded.

The President: That law has been changed, and there is now no limit placed to the number, provided there is no reasonable objection to the applicant and he has the indorsement of two fellows.

Mr. Adler: Then as it stands now, any architect who wishes to become a fellow may become one. It only requires for his advancement the names of two fellow members and a willingness to pay dues. The first may not be so difficult to obtain, and the only safeguard is that a man may be so obnoxious as to cause two members to write their names over their protest.

The secretary read section of the by-laws on the subject of memberships, and after some further discussion, in which the qualifications required to be advanced to the Fellowship degree was raised, and the proposition to advance all the present associate members to that degree, Mr. Jenney moved that a committee of three be appointed by the chair, to report at the next annual meeting an amended by-law bearing on the fellowship. The motion prevailed.

The president announced as next in order Mr. D. Adler's paper "The Paramount Requirements of a Large Opera House," printed on page 45, which was read by that gentleman.

This paper was received at its close with marked approbation, and on motion was referred to the Committee on Printing.

At the conclusion, the convention adjourned to visit the Northwestern Terra-Cotta Company's works after lunch, and the Inter-State Industrial Exposition in the evening.

SECOND DAY'S SESSION.

The convention was called to order by the chairman, Vice-President Kendall, at 11:30 A.M., and the chair calling for unfinished business as first in order, Secretary A. J. Bloor read several letters, among which was one from Napoleon Le Brun and one from George C. Mason.

The President: The proposed change in the by-laws is the next business before the convention.

The secretary then read the circular containing the proposed changes, which had been forwarded to the several members of the Institute, which are as follows:

ARTICLE I. SEC. 5. The name of any honorary member, resident in this country, who, after his election to that grade, shall engage in the active practice of his profession, shall not afterward be printed in the roll of honorary members during the continuance of said active practice.

ARTICLE V. Add to the end of the following sentence: No president of the institute shall be eligible for consecutive reëlection to the national term more than once. A president above the age of seventy years, who has served two years, shall, if he so elect, be exempt from the payment of annual dues, and be enrolled as honorary member, with the additional title of Past President, and in any case shall continue to have all the privileges of the institute, including voting.

The amendments as read, were, on motion, adopted.

The President: We shall now hear from the Nominating Committee.

The committee submitted the following report:

For president, E. H. Kendall, of New York; secretary, H. O. Avery, of New York; treasurer, O. P. Hatfield, New York.

For board of trustees: A. J. Bloor, New York; H. M. Congdon, New York; Levi T. Scofield, Cleveland, Ohio; John W. Root, Chicago.

For board of education: N. Clifford Ricker, Champaign, Ill.; A. Stone, Providence, R. I.; W. R. Ware, New York; E. H. Taylor, Cedar Rapids, Iowa; Geo. C. Mason, Newport, R. I.

For secretary of foreign correspondence: Arthur Rotch, Boston, Mass.

The President: Gentlemen, I am surprised to find my name heading this list, I could not think of aspiring to the position. Not only that, I cannot possibly bring myself to serve you as president. I am not your man for president. I think Mr. Walter should remain your president. If he can no longer remain so, there is only one man in the country who should be president of the American Institute of Architects, as far as my feelings are concerned, and that man has not only a reputation in America with men of repute in the profession, but also in England, France, and Germany—Mr. Richard M. Hunt! I must very respectfully decline your nomination.

A member suggested that President Walter be continued in the office.

Mr. Deery: Mr. President, is it not a fact that Mr. Walter is now an honorary member of this institute, with the title of past president, and is not eligible to the office? Besides, he is too old to make long journeys, and is now very sick, and as I understand it, he has said he would not accept another reëlection.

Mr. Briggs remarked that the Committee on Nominations had considered Mr. Walter's sickness and his statement that he could not accept the office of president beyond this term, and that it was out of no disrespect to him that his name was not offered.

Mr. Deery: I ask for a decision. Does not the amended by-laws place Mr. Walter in the position of being ineligible for president?

The President: I should say it would act in that manner as he was the president when these amendments were made.

J. G. Cutler: Mr. President, I move that a committee of three be appointed to draft suitable resolutions, expressive of the feelings the members of this institute have for the faithful service rendered by Mr. Walter during his long term of office as president, and expressive of the regret we all feel that he has positively declined to serve us longer in the office he has so long served with honor and distinction.

After a general discussion, in which the question of the eligibility of some of the nominees was raised on account of not being advanced to the fellowship, Mr. Adler moved to refer back the report to the committee, with definite instructions as to the non-eligibility of associate members and eligibility of fellows.

The President: The next business is the report of the committee appointed to examine the trustees' report.

The chairman of the committee made the following report:

M. E. Bell: Your committee to which was referred the report of the Board of Trustees for 1887 report: First. That the thanks of the institute are due to the members of the Executive Board for the thoroughness and ability manifested in this year's work in the report submitted by them. Second. That we recommend that the report be placed on file and printed with the records of the committee. Third. That the various recommendations and suggestions made by the Executive Board be taken up seriatim and acted on by this convention. Fourth. That the papers relating to the reported case of non-professional conduct which are referred to in said report be made accessible to the members of the institute during this convention.

The President: The next business is the report of the Auditing Committee.

The committee made the following report:

D. H. Burnham: Your Auditing Committee having examined the treasurer's report and vouchers find the same correct.

The President: The report of the special committee on various reports is next in order. The following is that committee's report:

J. G. Cutler: We recommend that the address made by Mr. E. H. Kendall, and the report of Professor N. C. Ricker, be referred to the Committee on Publication. That a committee of three be appointed by the chair, who shall prepare a printed form to be used by the secretaries of the chapters for their annual reports; that the form be presented to the board of trustees for their approval at least two months before the next convention, and that the secretary of the association may forward this form to secretaries of each chapter. It is intended in this recommendation to secure for the convention information on such points as will be of interest to the Institute, but it is not intended to limit the reports of secretaries to the form alone, but to leave them free to furnish such supplementary information as in their judgment will be of interest. Your committee notices the absence of reports from two chapters, and recommends that the board of trustees inquire into the reason for this absence, and recommends that the secretaries of the chapters be instructed to forward their reports to the secretary of the Institute one month before the annual convention, and that a failure to report be inquired into by the board of trustees, to the end that reports from each chapter be received at each convention. We recommend that the Committee on Plan for a permanent home for the Institute be continued, and the number of the committee be increased to five. We recommend that the report of the Committee on Uniform Contracts be accepted, and that the report of the Committee on Architects' Protective Associations be accepted and the committee discharged; also that all protective work deemed desirable for the interest of the Institute be undertaken by the Institute within the limits of its present organization. We recommend that the report of the Committee on Improved Federal Works be accepted and that the committee be continued, with the addition of Mr. Bell, late supervising architect, to represent the district west of New York. We recommend the report of the Committee on Publication be accepted.

On motion, the reports of the committees were accepted, to be acted on separately hereafter.

The president announced next in order the reading of paper by M. E. Bell. (Printed on page 53.)

On motion, the paper was received with thanks and referred to the Committee on Printing.

The president announced a paper by W. W. Boyington. (Printed on page 51.)

On motion, the paper was received with thanks and referred to the Committee on Printing.

John Moser: Mr. Chairman, in connection with the paper just read by Mr. Boyington, I was strikingly reminded, in his reference to builders and contractors, of a circumstance which throws some light on the character of the old-time builders, especially of Philadelphia. In 1863 there was offered by the government a competition prize of $3,000 for the best plan for the present navy and war department building, the largest building in Washington. There were eighty competitors, and the profession put its best foot forward, but John Crumps, a Philadelphia builder, who came from England a simple carpenter, carried off the prize. This shows the state of the profession in those days, and that some of those old builders had some knowledge of architecture.

C. H. Ham then read a paper on "Manual Training," which was received with great applause, accepted with thanks and referred to the Committee on Printing. (Printed on page 44.)

The Committee on Nominations reported their revised list of nominations:

For president, R. M. Hunt, New York City; for secretary, W. A. Potter, New York City; for treasurer O. P. Hatfield, New York City.

For board of trustees: Napoleon Le Brun, New York City; Levi T. Scofield, Cleveland; H. M. Congdon, New York City; John W. Root, Chicago.

For board of education: Prof. N. Clifford Ricker, Champaign, Ill.; Alfred Stone, Providence, R. I.; W. R. Ware, New York City; H. Van Brunt, Kansas City, Mo.

For committee on publication: T. M. Clark, Boston; S. S. Beman, Chicago; Chas. Crapsey, Cincinnati; Geo. C. Mason, Providence, R. I.

For secretary of foreign correspondence: Arthur Rotch, Boston.

D. Adler: If these nominations are now satisfactory to the present board, I would move that the gentlemen nominated be elected to the positions for the ensuing year.

The President: The constitution requires that a ballot should be cast. The convention might designate some member to cast the ballot.

D. Adler moved that the chairman of the nominating committee, to cover the by-laws on elections, cast one ballot for each of the gentlemen named in the report of the committee, as the will of the convention in regard to the officers of the institute for the ensuing year. The motion prevailed, and the officers for the ensuing year declared elected according to the report of the committee on nominations.

The following supplementary report was submitted by the Nominating Committee:

E. J. Nickerson: Gentlemen, your committee appointed to nominate officers of the Institute for the ensuing term, find in the matter of the secretaryship the Institute will be forced to relinquish the services of the present incumbent who, for so many years has illustrated his membership and his office of secretary, by self-sacrifice and devotion to the public interest of the profession. This secretary has been Mr. A. J. Bloor, of New York City. There has been no moment in his long career when the

needs of the Institute have not been as near to him as would the private enterprise most dear to his heart. There has been no step in the advancement of the society which he has not sprung forward to take. There has been no hour so dark in its history as to cause him to falter. Whatever the Institute may be today, whatever it may be in the future, will, in a generous measure be due to the gratuitous efforts of this great public-spirited servant and advocate of his profession. Your committee find that it would not reflect credit on your honorable body to ask Mr. Bloor to further carry his burden which he has so faithfully borne. The demands upon the secretary's time have already become great. Its demands promise to increase, and without a liberal remuneration it will be impracticable for future secretaries to devote so much of their working time to the needs of the office, and we respectfully suggest that a salary be fixed by your honorable body that should henceforth attach to the office. Of the vantage ground we have gained we should not be forgetful to indorse the sentiments of those eminent members of this society who have expressed the hope that this Institute would have made to Mr. Bloor some solid and substantial expression of the debt the society surely owes him. If the office is to be paid in the future, then let the same worker that has been ours in the past receive a suitable reward; and it should not be understood that in the mere payment of money we can expect to balance the acts of our generous ex-secretary; money cannot accomplish such an end. Our heartfelt thanks must ever go out to him, and although we cannot demand his active services as secretary, we shall not the less still hope to bear upon his counsel and profit by his advice.

Secretary Bloor: Mr. President, I simply want to thank the committee for their kind remarks, and I will say I cannot give up my interest in the Institute, though I shall not be able to give it the time which I have. I will say further in regard to the circular letter from Mr. Hawley, I only knew of the existence of this document a short time ago when Mr. Hawley sent me a copy. Officially, I have no knowledge of the circular.

On the motion of Mr. Adler, the report was adopted, and ordered printed with the records of this convention.

On motion the convention adjourned to meet at eight o'clock in the evening at No. 15 Washington street, where the art exhibit of the convention was made.

EVENING SESSION.

The members of the Institute began to gather early to examine the large and unusually fine display of drawings and photographic work which had been made a special feature of this meeting. Owing to a lack of judgment, or want of comprehension in those having the hanging of the drawings in charge, the members were compelled to undergo a trying ordeal in their inspection, in which many of the advantages that might have been gained were lost. Instead of being hung on the walls properly, and in an orderly sequence, where the effects could have been studied, they were distributed over a wilderness of furnaces, steam pumps, and house building appliances, hung up against them where they could; leaned against, where they could not be hung, or chucked down in some obscure, out-of-the-way corner. (One of the finest drawings of the exhibit was exhumed by one of the members from a lot of bric-a-brac lying on the floor.) Had the drawings, sketches and photographic work been properly exhibited, then this evening might have been a very interesting and memorable one to the members, as the large and unexceptionally fine display of building appliances to be found there would have largely added to, rather than taken from the interest of the occasion. As it was, it reminded one of the patent medicine man's use of rocks for advertising purposes, only inversely, the drawings, sketches, etc., seemingly being placed to call attention to some special building appliance. The drawings consisted largely of line and water-color drawings. Without being invidiously inclined, where so much merit was apparent, probably the most interesting exhibit was a display of the originals of the set of monographs recently published by the *American Architect and Building News*.

After some two hours of examination and exchanging of views, the members were called to order, in the Illinois State Association of Architects' assembly room, to listen to a paper by John Moser, of Washington, D. C., on Federal Architecture, which was received with approbation and accepted with thanks. Mr. Moser, at the conclusion of his reading, illustrated his theory of construction by blackboard diagrams.

Mr. Hatfield called attention to the fact that Mr. Moser had a peculiar manner of illustrating his idea of line-drawing, and asked the president to request him to gratify the convention with an illustration.

The request being made, Mr. Moser stepped up to the blackboard and gave a very humorous illustrated blackboard talk — using, to carry out his idea, an outline of a man's coat, wherein the characteristics of the English, French and German nationalities were shown by the well-known and readily recognized cut of that particular garment; Mr. Moser claiming that as an individual characteristic was shown in his handwriting, the same lines expressed themselves in all he does — none the less so in architecture. The English characteristics were shown in the angular lines — the French in curved lines — the German in the combination of both.

The meeting, at the conclusion of Mr. Moser's "turn-coat" lecture, adjourned, to meet the following day, at 10:30 A.M., at the Art Institute.

THIRD DAY'S SESSION.

The chair called the meeting to order at 11 A.M.

The President: As Mr. Bloor, the secretary, has had to return to his hotel for some forgotten papers, in order that the business of the day may go on we will begin by calling for Mr. D. H. Burnham's paper.

Mr. Burnham then read his paper (see page 00), which was listened to with marked attention. At the conclusion he said:

Mr. Chairman, I have the honor of offering the following resolution, which the secretary will please read:

Resolved, That a committee of five members be appointed, of which the chairman of this convention shall be an *ex-officio* member, the other members to be selected by him, to act jointly with one of a similar number to be appointed by the Western Association of Architects at their next annual meeting, to report as to the best and speediest methods of consolidating all the architectural societies of America into one organization, the report to be full regarding the form and constitution for local societies, and also regarding the form and constitution and permanent place of meeting for the national or representative body; that the Western Association of Architects be and are hereby invited to unite with us in this work, and to appoint a committee as above.

Mr. Burnham: I move the adoption of the resolution.

Secretary Bloor: I second the motion. I read the paper the first day I got here, and I consider it a very able one. I think a large number of the members will agree with me. I think there are some points in it, perhaps, with which we may not agree, but on the whole it is a very able paper. I would move that Mr. Burnham be appointed on the committee.

Mr Burnham: I do not think it would be proper for me to be on the committee.

J. W. Root: I would like to move to amend this resolution for the joint committee by extending an invitation to the Architectural League of New York.

Mr. Burnham: That association is not a national association but a local one. It is the intention to have the work done by the national societies. It seems to me if you ask the League of New York you must also ask the Boston society and others. Those societies will afterward be asked to review the work, but the two societies named in the resolution are the only national ones I know of, and the work should be done by them.

Mr. Root: As I understand it, the Architectural League of New York is not a local organization, except as to the accident of location. It is my impression that its membership is not confined to New York — that its honors are extended to Chicago and elsewhere.

Mr. Burnham: Is not its name "Architectural League of New York?"

The President: As a member of the Architectural League of New York I would say that Mr. Root is correct in saying its members are not confined to New York. Its non-resident members are scattered all over the country.

Secretary Bloor: I was one of the members of the committee that framed the constitution and by-laws of the Architectural League of New York. Mr. Burnham is right and Mr. Root is right. Mr. Burnham is right in saying as a local organization it is confined to New York, and Mr. Root is right in saying its benefits extend outside of New York to those of the profession who have a disposition to accept them.

Mr. Burnham: I have no objection to the amendment except that other societies may feel they ought to be consulted.

D. Adler: It might be made to read in this way: The joint committee of this Association and the Western Association shall have power to have represented at their meeting such other societies as shall see fit to join in the movement.

Mr. Burnham: I believe if you ask all the societies to send representatives to that meeting it will defeat its purpose. There would be such a big representation of local societies as to break it down. It is not expected that the work of this committee will be conclusive, but simply to get up a general scheme to be submitted to each of the societies.

R. W. Gibson: I would like to ask whether there will be any informal request to the societies to attend, as they would be glad, many of them, to meet with the joint committee.

Mr. Adler: As the chairman of the Board of Directors of the Western Association, I will say this matter has been broached in our board, and I believe the entire membership is in favor of any report on consolidation, and I think they reflect the wishes of most of the members of the Western Association, and I think this resolution will be received with favor by the association, which meets at Cincinnati next month.

Mr. Root withdrew his amendment and the resolution was adopted.

The president announced the next order of business was the reading of a paper by Mr. J. C. Cady, of New York, on "Opera Houses." In the absence of Mr. Smith the paper was read by L. H. Sullivan. The paper elicited applause, and was, on motion, accepted and referred to Committee on Printing. (See page 46.)

The president announced a paper by Mr. J. L. Smithmeyer, of Washington, D. C., on "Library Buildings," which Mr. W. L. B. Jenney has kindly consented to read. This paper was also received with marked applause, and on motion accepted with thanks. (See page 51.)

The President: The next paper is from J. M. Wilson, of Philadelphia: Subject, "Where the Line of Demarkation between Engineering and Architectural Practice is to be Found," which was read by Mr. Sullivan. Received with applause, and on motion accepted and referred to Committee on Printing. (See page 43.)

The President: The next in order is a paper by G. A. Frederick, of Baltimore: Subject, "Dining Rooms." This paper elicited applause, and was, on motion, accepted and referred to Committee on Printing. (See page 49.)

At the conclusion of Mr. Frederick's paper, the chair announced the following committees:

On Resolution of Thanks to ex-President Thomas U. Walter: J. W. McLaughlin, Cincinnati; W. C. Smith, Nashville; J. G. Cutler, Rochester.

On Chapter of Reports in the Future: N. C. Ricker, Ill.; W. G. Preston, Boston; G. A. Frederick, Baltimore.

On Uniform Contracts: O. P. Hatfield, New York; A. Stone, Providence, R. I.; J. H. Windrim, Philadelphia.

On Compensation to ex-Secretary Bloor; H. H. Holly, New York; H. L. Gay, Chicago; J. Murdoch, Baltimore; A. Stone, Providence, R. I.; C. Crapsey, Cincinnati; J. B. Lirgins, Indianapolis; H. Van Brunt, Buffalo; J. L. Smithmeyer, Washington, D. C.; T. P. Chandler, Philadelphia; A. Laver, San Francisco.

The reports of the various committees which were received *en masse* at the Thursday's session were taken up in detail. The first in order was the report of the Committee on Reports.

An endeavor was made to amend the recommendation of the committee in regard to the chapter reports, so as to make the time for sending in the reports to the secretary of the institute two weeks instead of two months. Some considerable discussion ensued, participated in by Messrs. Crapsey, Adler, Briggs and the secretary, when the convention decided to adopt the recommendation as reported.

Mr. Adler moved to authorize the committee appointed to act in conjunction with the Western Association of Architects in the matter of federal buildings to make such modifications in the draft of the bill as may seem most expedient to secure its passage. As a member of the Western Association I was one of this committee sent to Washington to endeavor to secure its passage, and I became assured it may be necessary to make some modification to make the bill more attractive.

Secretary Bloor said it was not necessary for the committee had been given that power.

D. H. Burnham could not see the value of a committee of this sort. He had the honor to belong to the committee of the Western Association last year. The committee proceeded to Washington, and all that was possible to be done was most assuredly attempted and the result was simply nothing. They were informed on all hands at both ends of the avenue, that we had absolutely no effect whatever to carry out such reforms as were asked for. It would require an organization comprised of a great many members from a great many cities whose influence could be brought directly to bear on the congressmen and senators. He did not see how this committee, formed as it is, could do more than what has been done. Before success could be obtained public sentiment must be formed. The public press would have to be enlisted. As one of the congressmen from this section had said common light had to be thrown on the question, and one way would be to go home and bombard our senators and members of congress with letters from our friends and friends' friends and through the press, and in this way create public sentiment. There is no sentiment about this, and where there is no sentiment congressmen are apt to put it off or will invariably refuse to act. It seemed to him, while there was no harm in such a committee whatever, it was absolutely valueless. He moved the committee be discharged.

Secretary Bloor said Mr. Burnham had received one kind of advice from a member of congress, and he had received another kind of advice from another—Mr. Hewitt.

Mr. Burnham offered to withdraw his motion if the secretary would read Mr. Hewitt's letter and it did not sustain him.

Secretary Bloor said Mr. Hewitt's letter was not the only advice he had received. Mr. Hewitt advised putting the bill in the hands of one member of congress, whose work it should be to carry it through. He had had advice from other quarters, the secretary of the treasury and the incumbent supervising architect, and he believed in the combination of the advice there was good. He moved the committee be continued, with the modification recommended by the Committee on Reports.

Mr. Adler thought it might be well to add, to instruct the committee in doing all in its power to use the newspapers in forming public opinion by enlightening the public on the wishes of the convention.

Mr. Burnham wished to add a word more. He did not want to see this measure run about with all over Washington until everybody became disgusted with it. He thought little or nothing can be done more than had been done until some such organization as he had outlined in his paper existed, and have it select some person capable of explaining the bill take charge of it and see that he did his work. He did not mean by this a mere lobbyist, but that it will be necessary to have some one at Washington who will see the bill is brought up and forced to passage. Experience has shown this to be the case with many bills in which the people were interested that only became laws because some one of ability had seen the work was done—and that meant money. He would like to see the bill the next time it was attempted carried to a success, which it would not be until some one whose special work it was, was there to attend to it.

Mr. Adler called attention to the fact that this was not the first time a measure of public welfare, which afterward became a law, had met a like fate at first. It could not be called a defeat of the measure, the failure of the committee to be recognized. He believed in having this or some other committee go to Washington for the purpose of enlightening and influencing members of congress, and to keep it there until the measure is secured. If the committee was discharged as Mr. Burnham proposed, it would be an acknowledgment of a defeat of the purpose.

After some further discussion, the motion of Mr. Burnham to discharge the committee was put and the chair decided in the negative.

The committee was continued, and Mr. M. E. Bell, late supervising architect, added to it, and the committee empowered to add a fifth member.

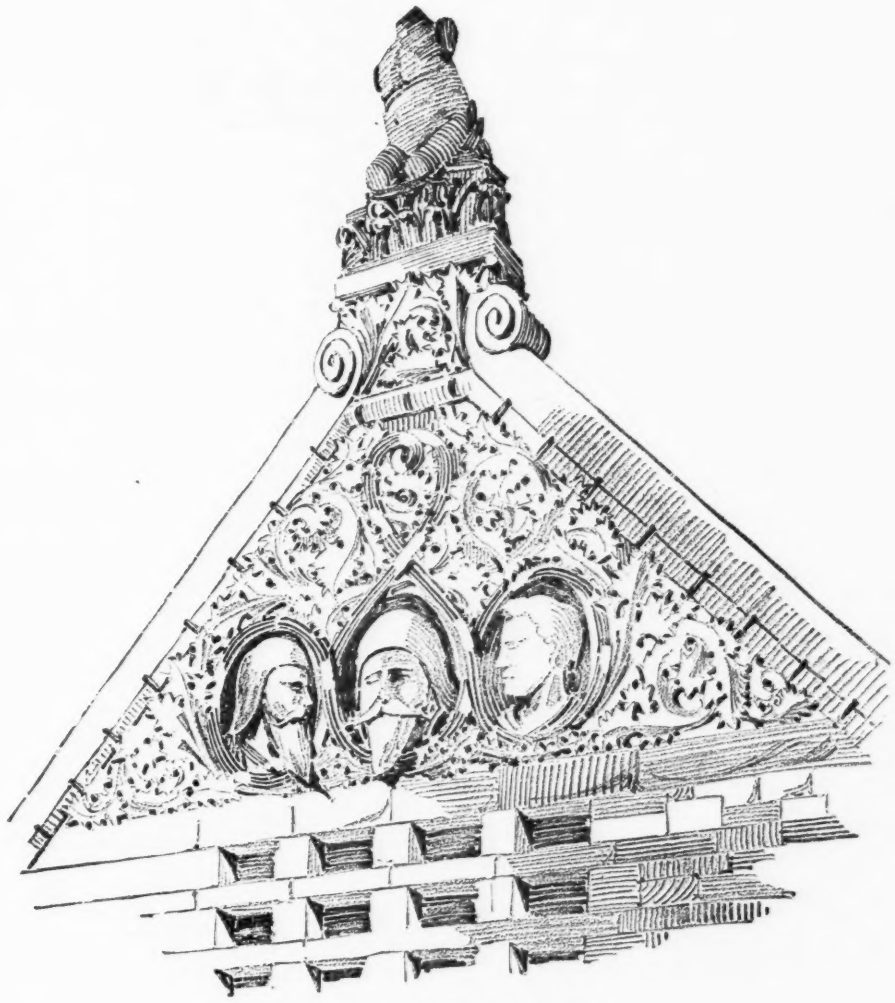
The secretary read a letter from the Committee on Metric System of the Western Association of Architects, advising the adoption of the system, which was referred to the Board of Trustees, with power.

Mr. W. C. Smith, of Nashville, moved that the subject of the complaint of non-professional conduct of one of the members, made by Mr. G. A. Frederick, of Baltimore, be taken up.

Mr. Burnham moved that the members of the press be requested to retire, which was carried.

After the discussion of the above subject, the convention proceeded to the closing business of the session, which was comprised in reading letters of congratulation, etc.; resolutions of thanks to Vice-President Kendall, the Chicago Literary Club, the contributors to the Art Exhibit of the meeting, members of the press, etc. The president then pronounced the convention adjourned.

ON the second afternoon of the convention almost the entire assembly accepted the invitation of the proprietors of the North-Western Terra-Cotta Works, and were driven in carriages to the works, in the northwestern part of the city. Arriving there, the gentlemanly hosts, Messrs. True, Hottinger and Wagner, escorted the party through the vast floors devoted to the designing and manufacture of red buff and brown terra-cotta. In the modeling room the artists were hard at work upon the clay forms that were being molded from the architects' designs.



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Fuller particulars may be obtained by addressing said Auditor as below, or by consulting the detailed advertisements for said work.

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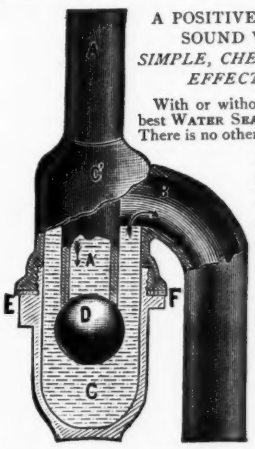

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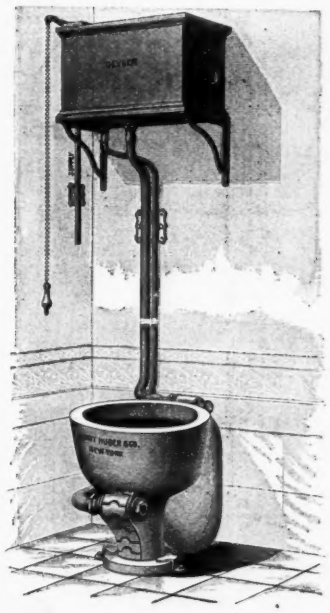

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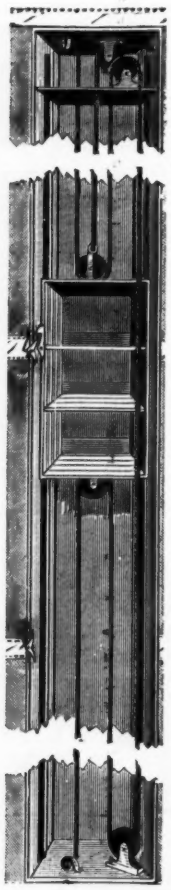

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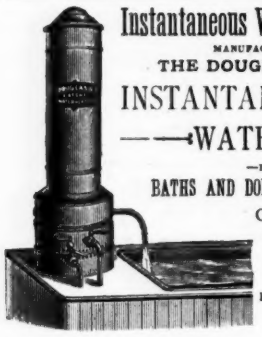

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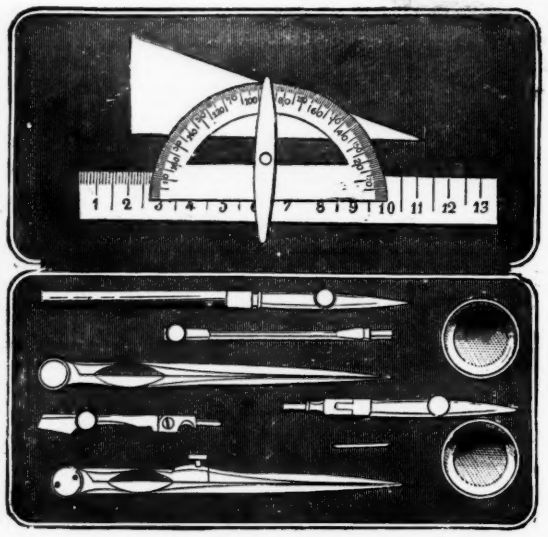

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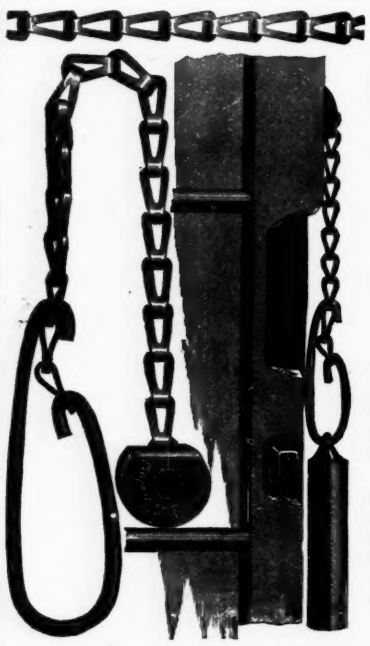

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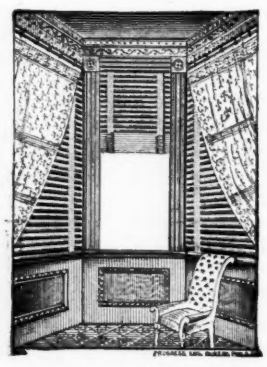

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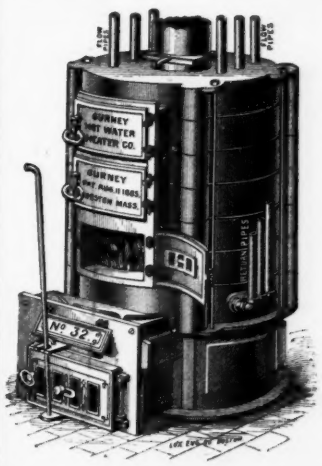

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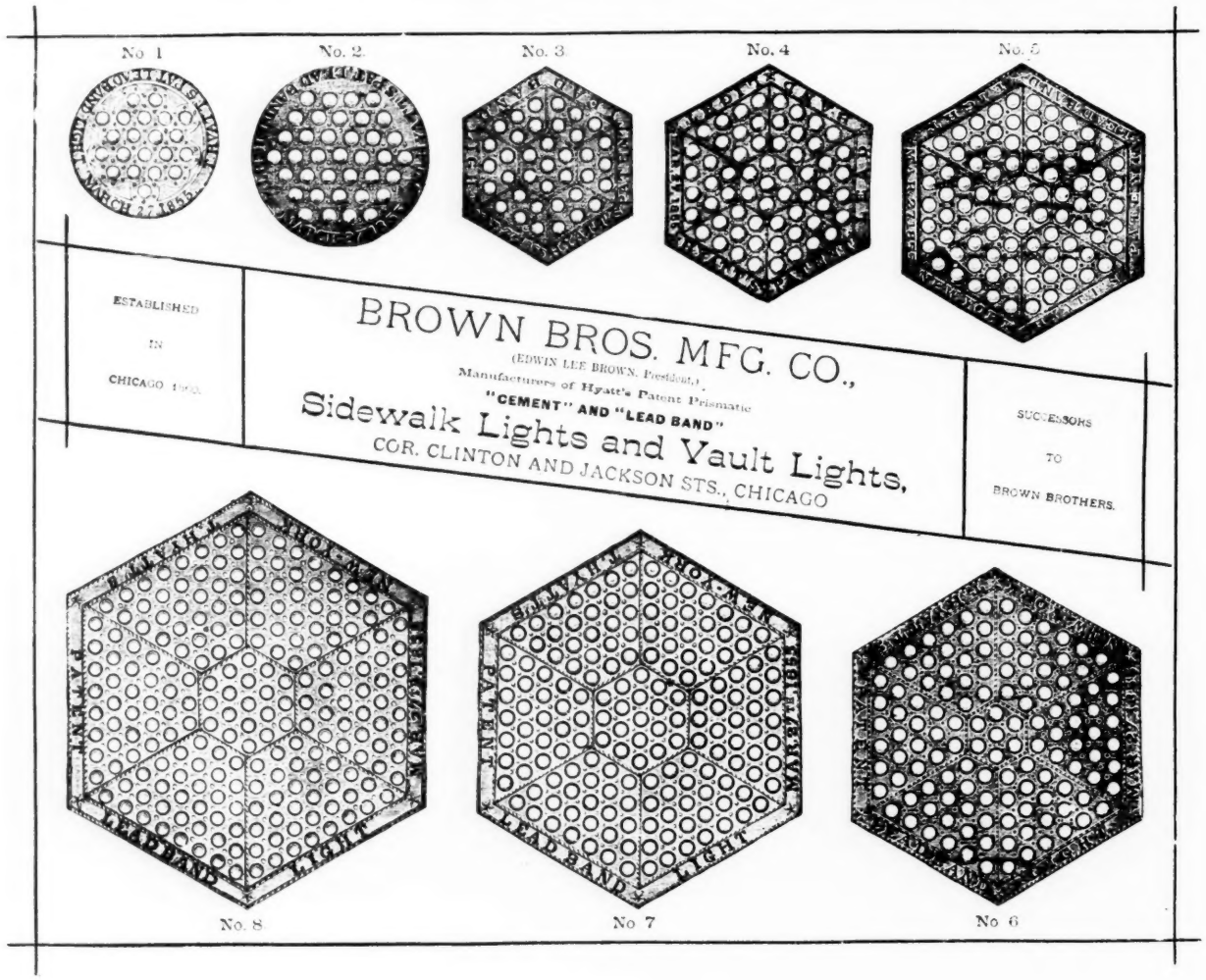

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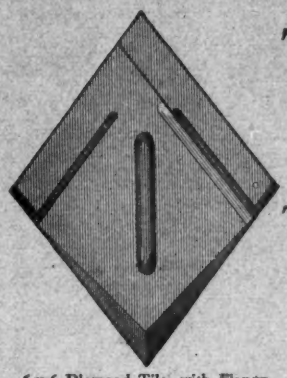

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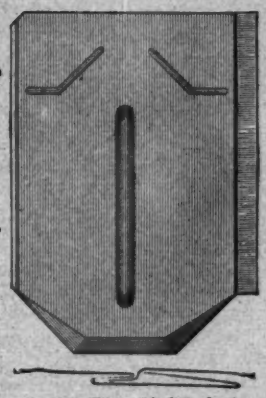

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